United States
Department of
Agriculture

Forest Service
Southern Region

ENVIRONMENTAL ASSESSMENT

INTERIM STANDARDS AND GUIDELINES FOR THE

PROTECTION AND MANAGEMENT OF RCW HABITAT

WITHIN 3/4 MILE OF COLONY SITES

JANUARY 1990

United States Department of *Agriculture*

Forest Service

Regional Office

1720 Peachtree Rd., NW
Atlanta, Ga. 30367

Reply to: 1920/1950/2600

Date: January 24, 1990

Dear Reader:

Enclosed for your review is an Environmental Assessment (EA) for Interim Standards and Guidelines for the Protection and Management of Red-cockaded Woodpecker (RCW) Habitat Within 3/4 mile of Colony Sites. As you recall, developing the interim standards and guidelines is Phase 2 of our 3-Phase process to amend the Southern Regional Guide with new long-range RCW habitat management direction. RCW habitat will be protected and managed under the interim standards and guidelines selected from this EA until the comprehensive long-range direction is developed, analyzed, and implemented.

On July 7, 1989, I asked you to review and comment on a proposal attached to the scoping letter for the EA. The response from our interested and affected publics was excellent. Your comments and those of others were used in developing the alternatives and analyzing their potential environmental consequences. My preference in alternatives at this point is Alternative 3. Alternative 3 allows for protection and management of RCW habitat during the interim period and provides for multiple resource management. The biological evaluation (Appendix A of the EA) indicates alternative 3 is not likely to adversely affect and in fact will benefit the RCW. However, prior to making my decision, I would like your comments. I'd like to know how you feel about alternative 3, or if you prefer another alternative and why. I'll be selecting an alternative in approximately 30 days, so in order for your comments to be considered they must be sent to David P. Smith, RCW EIS Team Leader, 1720 Peachtree Rd. NW, Atlanta, GA., 30367-9102 by March 2, 1990.

We will initiate consultation with the USDI Fish and Wildlife Service under Section 7 of the Endangered Species Act for their concurrence with the determination in the biological evaluation to ensure alternative 3, if selected, is not likely to jeopardize the continued existence of a threatened or endangered species.

After considering your comments and those of the Fish and Wildlife Service, I will select the alternative to be implemented and amend the affected Forest Plans accordingly.

I appreciate your time and effort in helping us. If you have any questions concerning the proposal, please contact David P. Smith at (404) 347-4338.

for JOHN E. ALCOCK
Regional Forester

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INTRODUCTION

This Environmental Assessment (EA) documents the results of an environmental analysis of 5 alternatives developed as interim standards and guidelines for Red-cockaded Woodpecker (RCW) habitat protection and management within 3/4 mile of RCW colonies. This EA does not disclose site-specific environmental impacts. The selected alternative will provide standards and guidelines for future site-specific project analysis and appropriate documentation under the National Environmental Policy Act (NEPA). Each project level proposal will also require compliance with the Endangered Species Act (ESA). ESA compliance requires a biological evaluation to determine the affect on RCW and other endangered, threatened or sensitive species and species proposed for listing under one of these categories that could be affected by a project level proposal. In addition, the site-specific analysis will be conducted in compliance with the National Forest Management Act (NFMA) and any other applicable laws. The selection of an alternative other than Alternative 1, will require an amendment to the Land and Resource Management Plans for the affected National Forests.

The interim standards and guidelines will be in effect until the Regional Guide Environmental Impact Statement (EIS) is supplemented and the Regional Guide amended with new RCW protection and management standards and guidelines. The analysis process for completing the EIS is expected to take about 2 years.

I. *NEED FOR THE PROPOSAL*

Proposed Action - The proposed action is to establish interim regional standards and guidelines for RCW habitat protection and management within 3/4 mile of active and inactive RCW colonies in RCW populations with less than 250 active colonies. The interim standards and guidelines will be in effect until the analysis process is completed for the EIS supplement and Forest plans are amended to include the new RCW protection and management standards and guidelines.

Need - Recent RCW surveys indicated a decline in the number of active colonies for most of the RCW populations with less than 250 active colonies. A majority of these populations are small (less than 50 active colonies) and have a high risk of extirpation. The primary cause of these declines is believed to be from mid-story encroachment of vegetation in the colony sites. Other factors that may be contributing to these declines are isolation and demographic problems, lack of potential cavity trees, genetic problems, cavity competition, loss of cavity trees and habitat fragmentation. The Regional Forester decided immediate action was needed to stabilize these populations and new long-range standards and guidelines for RCW management should be developed to reverse this decline and to progress toward achieving RCW population objections. Consequently, a 3-phase process was established.

Phase 1, began with the development and issuance of the "Policy on Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts", March 27, 1989. This policy provided criteria for modifying existing timber sales within 3/4 mile of RCW colonies as necessary to protect RCW habitat. The Policy was an urgent and temporary action designed to stabilize the declining RCW populations, maintain the environmental status quo, and protect RCW habitat until "Interim RCW Guidelines", as stated in the Policy, could be developed and implemented through Phase 2 of the process.

Phase 2, consists of an analysis to develop and implement "Interim RCW Guidelines" for which this Environmental Assessment was prepared. Now titled "Interim Standards and Guidelines for Protection and Management of RCW Habitat Within 3/4 Mile of Colony Sites", these interim standards and guidelines provide habitat protection and management direction based on additional analyses and public input. These interim standards and guidelines are also temporary, and will be in effect while the long-range RCW management standards and guidelines for the southern national forests are being developed. Like the March 27, 1989, Policy, the alternatives considered for interim standards and guidelines were developed to "ensure that any action authorized, funded, or carried out by [the Forest Service] is not likely to jeopardize the continued existence of . . . ." the RCW (ESA Sec. (a)(2); 16 USC 1536(a)(2). Phase 2 will be in effect until Phase 3 is completed in approximately 2-3 years.

Phase 3, consists of an analysis to develop and implement long-range management direction to promote the recovery of RCW populations. Phase 3 began in May 1989, when a Notice of Intent to prepare a supplement to the FEIS for the Southern Regional Guide was published in the Federal Register. Completion of the supplement to the Regional Guide EIS is necessary before the Regional Guide can be amended. The amendment to the Regional Guide will establish long-term management direction for the RCW. Once the Southern Regional Guide is amended, the RCW Chapter of the Wildlife Habitat Management Handbook, FSH 2609.23R, will be revised accordingly.

Scope of the Analysis - The scope of the analysis and the decision to be made are limited. The direction will be limited to RCW habitat (pine and pine-hardwood) within 3/4 mile of active and inactive RCW colonies in populations with less than 250 active colonies.(see Table 1, pg. 3). This involves all of the populations on National Forests in the Southern Region except the Apalachicola population in Florida, and the Vernon-Kisatchie-Evangeline population in Louisiana. These populations have more than 250 active colonies and are excluded because the short-term objective of the interim standards and guidelines is to stop declines and protect those populations with a high risk of extirpation. The Apalachicola and Vernon-Kisatchie-Evangeline populations appear to be stable or increasing and do not require additional protection to maintain their population levels during the interim period. The National Forests in Texas are also excluded. These National Forests are operating under a court ordered plan for RCW management.

The scope of this proposal is limited to consideration of RCW habitat protection and management standards and guidelines as they apply to proposed activities that may affect RCW or its habitat within 3/4 mile of the colony site. These activities include cutting for timber management or for other purposes such as oil and gas exploration. It is limited in time to about 2 years or when the long-range standards and guidelines are established through amendment to the Regional Guide. As with other proposed projects that were not specifically disclosed in Forest Plans and their EIS's, any action proposed within 3/4 mile of RCW colonies will require further site-specific (project level) compliance with the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), and Endangered Species Act (ESA). Compliance with other applicable laws will also be required.

The 3/4 mile area is divided into two zones. These are within 1/4 mile of a colony center and between 1/4 and 3/4 mile of the center. Suitable foraging habitat within 1/4 mile of each colony is critical in sustaining that colony. Suitable nesting habitat within 3/4 mile of each colony is recommended by the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) and the RCW Recovery Plan to enhance colonization and provide for recruitment. Because RCW management objectives are different in each zone, they are identified separately and specific habitat management direction and mitigation measures are provided.

TABLE 1 - COLONIES TO BE AFFECTED BY POLICY

NATIONAL FORESTS	POPULATION OBJECTIVE Active Colonies	NUMBER OF COLONIES 1989 1/ Active	Inactive	Total
1. Bankhead NF (AL)	50	0	8	8
2. Bienville NF (MS)	286	88	105	193
3. Caney RD, Kis. NF. (LA)	20	0	3	3
4. Catahoula-Winn RD, Kis. NF (LA)	125	50	95	145
5. Cherokee NF (TN)	N/A	1	0	1
6. Conecuh NF (AL)	125	16	36	52
7. Croatan NF (NC)	90	45	28	73
8. Daniel Boone NF (KY)	50	6	18	24
9. DeSoto NF (MS)	250	18	96	114
10. Francis Marion NF (NC)	500	487	31	518 2/
11. Homochitto NF (MS)	125	26	35	61
12. Oakmulgee Division, Tall. NF (AL)	250	157	144	301
13. Ocala NF (FL)	138	14	42	56
14. Oconee NF (GA)	210	1	10	11
15. Osceola NF (FL)	250	50	52	102
16. Ouachita NF (AR)	36	16	9	25
17. Sumter NF (SC)	10	0	10	10
18. Talladega Division, Tall. NF (AL)	125	5	156	161
19. Tuskegee NF (AL)	21	1	2	3
20. Uwharrie NF (NC)	N/A	0	2	2
Total:	2,661	981	882	1,863

1/ Based on District records through the 1989 nesting season. Unknown colonies may exist in some populations, but the number is most likely small and insignificant. The likelihood of unknown colonies being active is very low.

2/ Pre Hurricane Hugo population.

Inactive colonies and associated habitat are included in the scope of this proposal because they are needed to achieve population objectives identified in the RCW Recovery Plan. The inactive colony sites offer the best sites for colonization and are key for population growth. Maintenance of suitable habitat conditions across all colonies ensures that the ability to achieve population objectives are not foregone and makes possible the highest probability of capturing dispersing RCW is achieved.

The interim guidelines, as they apply to silviculture, do not include RCW colonies in Virginia or pitch pine stands. The silvics of these pine species are significantly different from other southern yellow pine species and therefore, the silvicultural guidelines are not applicable. For example, activities such as thinning or prescribed fire that benefit other pine species are likely to damage Virginia or pitch pine stands. Therefore, because the silvics are dramatically different and the fact that there are very few RCW colonies in these stands, any proposed action within 3/4 mile of RCW colonies located within Virginia or pitch pine stands will be handled on a case by case basis and will require a site-specific environmental analysis and a biological evaluation, but will not be subject to these guidelines.

Prior to Hurricane Hugo, the Francis Marion RCW population in South Carolina was exempt from the March 27, 1989, Policy and would not have been included under the interim standards and guidelines. This population exceeded 250 active colonies and had increased about 10% since 1981. However, the hurricane had a catastrophic effect on the RCW population and its habitat. The latest population survey indicates approximately 25% of the individual RCW families or clans were lost as a direct result of the hurricane. Even with this loss, more than 250 colonies remain. However, concern now is for the viability of remaining clans due to loss of habitat. Vast amounts of foraging area were blown over and numerous cavity trees, weakened by woodpecker cavities, were broken off or blown over. Efforts such as the use of artificial cavity inserts and drilled cavities in undamaged standing trees have been successful. However, it is unknown if the amount of suitable habitat remaining will be sufficient to support the colonies that survived the storm. It is likely that additional RCW colonies will be lost. In addition, the potential exists for more RCW and habitat loss due to indirect effects of the hurricane. An increase in pine bark beetle activity is anticipated which could kill additional trees. Also, the amount of tree debris or fuels (pine tree tops, branches, etc.) now lying on the ground increases the likelihood and severity of wildfires. If lack of moisture and certain atmospheric conditions occur, a catastrophic wildfire is possible that could cause additional woodpecker and tree mortality. Therefore, because it is likely additional colonies will be lost, any action within 3/4 mile of RCW colonies on the Francis Marion National Forest will now be considered under these interim standards and guidelines.

Location - RCW populations considered in this analysis include those with less than 250 active colonies. The National Forests in the States of Mississippi, Alabama and Louisiana have the largest concentration of these colonies. Other states include Georgia, North Carolina, Kentucky, South Carolina, Tennessee and Arkansas. These populations with less than 250 active colonies (see Table 1, pg. 3) have a total of 1,343 colonies of which 494 are active. The 3/4 mile zones associated with these colonies comprise approximately 672,000 acres or 27 percent of the 2,470,000 acres of suitable habitat available to these populations. There are 76,600 acres within the 1/4 mile zone and 595,400 acres between 1/4 and 3/4 mile.

The RCW is endemic to the pine forests of the southern United States. It is found from Texas to the Carolinas. The species is non-migratory and clans maintain year-round territories near their nesting and roost trees. One of the more unique features of the RCW's life history is its selection of mature, living pines for cavity excavation. Over much of the bird's remaining habitat, it is associated with older aged timber stands. It is the only woodpecker species to excavate a nesting

cavity in living pine trees exclusively. Most active colonies are found in open, park-like pine stands. RCW exhibit a distinct preference for living pines for foraging as well. They are known to select larger pines over smaller pines as foraging sites. Table 1 (pg. 3) list the current inventory of active and inactive colonies by RCW population.

Issues and Concerns

Public Issues

On July 7, 1989, a scoping letter and proposed interim guidelines were sent to each Forest Supervisor where the policy would be in effect. This information was distributed to individuals and organizations on their land and resource management plan mailing list. A total of 14,518 letters were mailed. The letter invited the public to submit their issues and concerns regarding the proposed action of implementing interim guidelines on cutting within 3/4 mile of RCW colonies. In the 45 day time period that was allowed for public response, 124 letters were received. Content analysis done by an interdisciplinary team identified six major issues to be addressed in the analysis of the interim guidelines. They are:

Major Issue 1 - Include all RCW populations on National Forests under the interim policy.

a. New studies indicate 250 clans may be insufficient to maintain a viable population.

b. Birds from larger populations will be needed to support declining populations.

Major Issue 2 - Consider the adverse socio-economic effects of reducing timber cut on the National Forests.

Subissues:

a. Economic impact to timber industry.
b. Regional and local socio-economic impacts to timber industry related employment.
c. Reduction of "in lieu of taxes" payment to county governments.
d. 3/4 mile zone around colonies is excessive and wastes taxpayers money.

Major Issue 3 - Prohibit all cutting and protect existing habitat until EIS is completed.

Major Issue 4 - Modify existing timber management within 3/4 mile of RCW colonies.

Subissues:

a. Change from clearcutting and even-aged management to selection cutting and uneven-aged management.

b. Change basal area (BA) guidelines to lower thinning BA's and raise shelterwood regeneration BA's.

c. Extend rotation ages.

d. Re-establish more longleaf and associated species ecosystems and protect existing ones.

e. Remove mid-story gradually or not at all.

f. No Southern Pine Beetle (SPB) control.

g. Do not follow existing handbook direction for any aspect of interim guidelines.

h. Regeneration areas should be reduced in size.

i. Do not manage circles, manage acreage blocks so boundaries can be identified on the ground.

j. Manage according to site conditions, population goals, and whether colony is active or inactive.

k. Specify foraging needs in trees per acre and diameter class rather than basal area.

Major Issue 5 - Increase RCW survey and monitoring activities.

Subissues:

a. Know what we have before setting policy as there is significant habitat unsurveyed.

b. Locate unprotected colonies.

c. Locate and protect potential colony sites needed to achieve population objectives.

d. Evaluate various cutting methods on RCW.

Major Issue 6 - Consider the impacts to non-timber and non-RCW resources.

Subissues:

a. Other uses such as recreation or powerline right-of-ways should be considered in developing interim guidelines.

b. Consider impact to other resources such as wildlife if hardwood trees are removed for RCW management.

Management Concerns

In addition to public issues and management concerns, the following 5 criteria were used in developing the alternatives considered in detail. They are:

1. The alternative would not likely adversely affect RCW or violate the Endangered Species Act.

2. The alternative would not affect the overall character of the area surrounding RCW colonies to the extent that other management cannot be considered during the amendment process for the Regional Guide.

3. The alternative would consider the zone within 1/4 mile of the colony center to be most sensitive to potential impacts such as habitat fragmentation, colony isolation, and foraging habitat depletion.

4. The alternative would consider the zone within 3/4 mile of the colony center important for future colonization and population recruitment.

5. The alternative would be consistent with the direction in the RCW Chapter of the Wildlife Habitat Management Handbook (FSH 2309.23R), while providing additional protection and management guidelines as identified through the NEPA process.

II. ***ALTERNATIVES***:

The preceding issues were used in considering and developing 7 alternatives. Two alternatives were considered but eliminated from detailed analysis. Five alternatives were analyzed in detail.

Alternatives Considered But Eliminated From Further Analysis:

1. No cutting within 3/4 mile of RCW colonies during the interim period. This alternative responds to Issue 3.

Reason for elimination: Implementing this alternative would likely result in a Section 7 ESA violation by not taking action to protect and manage RCW habitat thus allowing the continued decline of the smaller RCW populations. Management of RCW habitat, including cutting, is critical in enhancing existing habitat through the removal of mid-story encroachment in the colony site. It is also necessary to provide future suitable habitat and protect the existing habitat from insects and disease.

2. Implement an uneven-aged management silvicultural system within 3/4 mile of RCW colonies. This alternative responds to Issue 4.

Reason for elimination: This alternative was eliminated because uneven-aged management is not feasible to implement within the timeframe of these guidelines. Major changes in the way stands are inventoried, regenerated, monitored, and treated would be required to ensure that overall forest productivity and viability remains high. The time it would take to develop and implement these changes would likely be longer than the interim standards and guidelines would be in effect. It is expected that such a small area of land is likely to be affected during the interim period, irrespective of which alternative is selected, that the possibility to choose other management options in the EIS will be maintained. Thus, an uneven-aged alternative can be analyzed in the EIS for the amendment to the Regional Guide for RCW.

Alternatives Considered in Detail

Cutting or other actions within 3/4 mile of RCW colonies will require project level compliance with NEPA, NFMA, and ESA, as well as other applicable laws and regulations.

Specific activities associated with cutting, colony site protection and management for each alternative are displayed in Table 2 (pg. 18). Table 3 (pg. 31) displays how each alternative responds to the issues.

The alternatives are:

ALTERNATIVE 1 - No action. Activities under this alternative associated with colony site protection and habitat management within 3/4 mile of RCW colonies are consistent with the direction found in Chapter 420 of the Forest Service Wildlife Habitat Management Handbook, FSH 2609.23R.

The following activities associated with RCW and other resource management could occur within 3/4 mile of active and inactive RCW colony sites:

a. ***Thinning*** - Thinning within suitable habitat is allowed for timber management, southern pine beetle (SPB) risk reduction and RCW habitat improvement. To accomplish these objectives, the number and spacing of trees to be left varies by site-specific conditions. Thinnings within suitable habitat may occur within 3/4 mile of a colony provided a minimum of 6350 trees equal to or greater than 10" in diameter at breast height (DBH) remain within 1/2 mile of the colony site. In order to reduce the risk of SPB infestations, stands should be thinned to maintain or increase tree vigor and reduce SPB risk. Generally, a thinning range of 60-110 square feet of basal area per acre is desired. The trees left to grow should be well formed, healthy and vigorous.

b. ***Stand Regeneration Using the Clearcutting Method*** - The clearcut method of regenerating stands of suitable habitat may be used provided the site-specific analysis determines adequate foraging is maintained and not isolated from the colony as a result of the clearcut.

c. ***Stand Regeneration Using the Shelterwood/Seed-tree Methods*** - Regeneration of suitable habitat using the shelterwood or seed-tree method may occur within 3/4 mile of the colony if the site-specific analysis determines that adequate foraging habitat would be maintained and not isolated from the colony as a result of the seed-tree or shelterwood cut. The amount of shelterwood or Seed-trees retained on the site would depend on site conditions and species. Guidance is provided by FSH 2409.21d and 2471.1-R-8, Silvicultural Handbooks.

d. ***Clearing for Non-timber Management Purposes*** - Cutting in suitable habitat for purposes such as oil and gas exploration, powerline or gas line rights-of-way establishment or maintenance may occur provided the site-specific analyses indicates RCW is not likely to be adversely affected.

e. ***Colony Site, Replacement/Recruitment Stand Protection***

1. ***Cutting*** - Cutting may occur within the colony site including cutting of cavity trees if necessary to protect or enhance RCW habitat or to remove a hazard to public safety. Consultation with F&WS is necessary prior to cutting a cavity tree.

2. ***Motorized or Heavy Equipment Use*** - Use of this type equipment in the colony site is prohibited during the breeding season (generally March 1 - July 31) in RCW populations with less than 50 active colonies. In populations with 50 or more active colonies, use of this equipment will be minimized during the breeding season. Concentrated equipment or human use such as log decks or off-road vehicle trails within the colony site are not prohibited but project planning should locate such activities outside the colony if possible.

3. ***Prescribed Burning*** - Burning to control mid-story encroachment could occur and is recommended in the 3/4 mile zone including the colony site. Cavity trees will be protected from fire by hand raking flammable debris from base of cavity tree.

4. ***Construction of linear rights-of-way such as roads and utility lines*** - These activities may occur within the colony site except during the RCW breeding season and with adequate cavity tree protection.

5. ***Existing roads through colony site*** - Roads may be used if not adversely impacting RCW.

6. ***SPB suppression*** - Efforts to protect existing habitat from SPB will continue under the direction in the SPB EIS Record of Decision.

7. ***Any other potentially disturbing activities not specifically identified or known at this time that may affect RCW during the breeding season (generally March 1 - July 31)*** - In populations with less than 50 active colonies, any potentially disturbing activities such as trail rides, enduro races, etc., would be prohibited in the colony site during the breeding season. In populations with 50 or more active colonies, potentially disturbing activities will be minimized.

f. ***Colony Site, Replacement/Recruitment Stand Management***

1. ***Mid-story Control*** - Hardwood mid-story should be reduced to less than 20 square feet of hardwood basal area per acre. All hardwood stems 1 inch in diameter or larger within 50 feet of cavity trees should be removed.

2. ***Colony Site Designation*** - Designate a 200 foot boundary around the aggregate of cavity trees and manage as a colony site.

3. ***Marking*** - Mark all cavity trees and map colony sites.

4. ***Thinning Within Colony Site*** - Thin colony site as needed to reduce SPB risk.

5. ***Recruitment Replacement Stands*** - Establish recruitment and replacement stands for classification as unsuitable acres (unsuitable for timber management). These stands would not have a rotation age and would be managed as colony sites.

g. ***Foraging Habitat Management*** - At least 125 acres of well stocked (60-90 sq. ft. per ac. BA) pine or pine-hardwood stands which are 30 years or older (40% or 50 acres > 60 years old) contiguous to the colony site would be managed as foraging habitat for each colony. As an option, a Forest may provide an equivalent foraging amount of 6350 trees > 10 inches DBH.

h. ***Monitoring*** - approximately 10% of the colonies would be checked annually to determine the colony status as part of the prescription process. A 10 year trend survey has been developed utilizing sample (baseline) compartments in each RCW population.

I. ***Special Area Management*** - Habitat manipulation and special protection measures may be implemented in special areas such as wilderness in order to protect or recover RCW. The focus would be to maintain viability of essential RCW colonies in these areas. Only the minimum actions necessary would be used following appropriate NEPA compliance and a biological evaluation. Recruitment and replacement stands for these special areas would be established outside special areas to encourage RCW population growth outside the special area.

Alternatives 2-5

Alternatives 2-5 identify two zones for protecting RCW colony sites. These are within 1/4 mile of a colony center and between 1/4 and 3/4 mile of the center. Suitable foraging habitat within 1/4 mile of each colony is critical in sustaining that colony. Suitable nesting habitat within 3/4 mile of each colony is recommended by the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) and the U.S. Fish and Wildlife Service's RCW Recovery Plan to enhance colonization and provide for recruitment. Because RCW management objectives are different in each zone, they are identified separately and specific habitat management direction and mitigation measures are provided.

Within 1/4 mile of the colony center, RCW can be adversely affected if cutting causes habitat fragmentation, isolates the colony or depletes the minimum amount of foraging habitat necessary to sustain the colony. Alternatives 2-5 provide guidelines to allow cutting, protect the colony site and manage the habitat within this zone to minimize these impacts.

In the area between 1/4 and 3/4 mile of the colony center, the management objectives are to provide suitable old growth pine for future colonization, population recruitment and reduce the chance of colony isolations. Therefore, alternatives 2-5 provide guidelines to allow cutting, protect the colony site and manage the habitat in this area while providing for a component of the oldest age pine trees.

Alternatives 2-5 are consistent with the direction in the Forest Service Handbook (2609.23R) and offer additional management measures for the smaller RCW populations in order to prevent any further population decline during the interim period. Mitigation measures to reduce the potential impacts of these activities in these zones have been incorporated in all the alternatives instead of being listed separately.

Alternative 2, 3 and 5 contain additional colony site protection and management measures as well as more foraging habitat management, monitoring and special area management over what is found in FSH 2609.23R. These measures were developed from public issues, management concerns, the Comprehensive Plan based on October 22, 1988, court decision for the Management of the Red-cockaded Woodpecker Habitat in the National Forests in Texas (December 15, 1988), and F&WS recommendations for that plan.

ALTERNATIVE 2 - Activities under this alternative associated with cutting, colony site protection and habitat management within 3/4 mile of RCW colonies would follow the "Proposed Action - Interim Policy on Cutting Within 3/4 Mile of RCW Colonies", that was distributed with the July 7, 1989, scoping letter for this EA.

The following direction associated with RCW and other resource management applies within *1/4* mile of active and inactive colony sites:

a. *Thinning* - Thinning within suitable habitat is emphasized to improve RCW habitat and reduce the risk of SPB infestations. To accomplish these objectives, the number and spacing of trees to be left varies by site-specific conditions. Thinnings within suitable habitat may occur within 3/4 mile of a colony provided a minimum of 6350 trees equal to or greater than 10" in diameter at breast height would remain within 1/2 mile of the colony site to provide adequate foraging. In order to reduce the risk of SPB infestations, stands should be thinned to attain maximum growth and vigor. Generally, a 60 to 100 sq. ft. basal area per acre is recommended depending on site conditions. Thinnings will retain trees most suitable for future RCW nesting habitat. Trees left in

order of priority are: (1) relict trees; (2) potential cavity trees; (3) trees 10 inches and greater DBH that are not potential cavity trees and; (4) trees less than 10 inches DBH.

b. *Stand Regeneration Using the Clearcut Method* - Regeneration using the clearcut method would not occur during the interim period unless a determination is made that RCW would be enhanced and not adversely affected as a result of the clearcut. The circumstances under which this could occur is when opportunities arise for converting longleaf pine sites occupied by another pine species, back to longleaf. The only feasible way of accomplishing this is by clearcutting and planting longleaf seedlings. However, in order to ensure adequate foraging, clearcuts would not occur if more than 25 percent of the existing suitable habitat within 1/4 mile of the colony is less than 30 years old. In addition, a site-specific analysis must indicate RCW habitat would be enhanced by converting a site back to longleaf pine. Relict longleaf trees and one acre or larger clumps of longleaf pine containing at least 40 square feet of basal area per acre of longleaf pine would be retained in the clearcut. In addition to the longleaf relicts, 5-6 potential longleaf cavity trees per acre would be retained, if available.

c. *Stand Regeneration Using the Shelterwood or Seed-tree Method* - Regeneration using these methods would not occur within 1/4 mile of the colony site during the interim period. Existing shelterwood or seed-trees would not be removed during the interim period.

d. *Clearing for Non-timber Management Purposes* - Clearings 10 acres or less for non-timber management purposes may occur if no more than 25 percent of the suitable habitat within 1/4 mile of the colony site is less than 30 years of age. Clearings over 10 acres cannot occur within this zone unless a biological evaluation determines that the action will not likely adversely affect RCW and F&WS concurs with this determination.

The following direction associated with RCW and other resource management applies *between 1/4 and 3/4 mile* of active and inactive colony site centers under this alternative:

a. *Thinning* - The same guidelines described for use within 1/4 mile of the colony site apply.

b. *Stand Regeneration Using the Clearcut Method* - Clearcutting may only be considered when the shelterwood or seed-tree methods are not feasible. These conditions include:

1. Converting sites where other species of pine are occupying longleaf sites back to longleaf.

2. Sparse or damaged stands where natural regeneration is not feasible. These stands are understocked and the trees are often unevenly distributed over the area.

3. Slash pine sites with very wet conditions due to a high water table.

When converting back to longleaf, longleaf relicts and one acre or larger clumps of longleaf pine with at least 40 square feet of basal area per acre would be retained in the clearcut. When clearcutting sparse, damaged, or wet sites, relict trees and one acre or larger clumps of pine with at least 40 square feet basal area per acre would be retained. In addition, 5-6 potential cavity trees per acre would be retained if available.

c. *Stand Regeneration Using the Shelterwood or Seed-tree Method* - These methods can be used for regenerating stands at or above RCW rotation age (See RCW Extended Rotation Guide, pg 12) provide adequate nesting or potential nesting habitat remains for replacement or recruitment following the proposed action. Regeneration may occur if more than 50% of the suitable

habitat within 3/4 mile of a colony is 60 years or older and at least 50% would remain following the proposed action. The cutting should occur in the predominate age class not necessarily the oldest. In addition, RCW Handbook direction (FSH 2609.23R) would be followed and fragmentation, colony isolation, foraging habitat amounts and continuity, isolation of recruitment or replacement (R/R) stands and age class distribution considered. Existing shelterwood and seed-trees would not be removed during the interim period.

The following shelterwood or seed-tree leave basal area ranges should be left as a minimum:

1. Loblolly pine: 20-30 square feet/acre
2. Shortleaf pine: 20-30 square feet/acre
3. Longleaf pine: 25-40 square feet/acre
4. Slash pine: 25-40 square feet/acre

Trees to be retained would be selected in the following order:

1. relict trees
2. potential cavity trees
3. other trees 10 inches or greater DBH that would meet the requirements for seed trees.

RCW extended rotation guide:

Forest Type	With R/R Stands	Without R/R Stands
yellow pine	70 years or longer	80 years or longer
longleaf pine	80 years or longer	100 years or longer

d. *Clearing for Non-Timber Management Purposes* - Clearing less than 10 acres are allowed following the existing direction to ensure 125 acres of foraging are provided and not isolated from the colony as well as protecting the colony site. Clearings greater than 10 acres may occur in stands below RCW stand rotation age if the clearing and associated activities adhere to the RCW handbook direction (FSH 2609.23R) and consider the effects of fragmentation, colony isolation, foraging habitat continuity, foraging habitat amount, isolation of recruitment and replacement stands and age class distribution. Clearings over 10 acres in stands above RCW stand rotation age may not occur during the interim period.

e. *Colony Site, Replacement/Recruitment Stand Protection*

1. *Cutting* - Cutting in colony site or in replacement or recruitment (R/R) stands, which are managed as colony sites, would only be done to protect or improve RCW habitat or to remove a public hazard. If cavity tree cutting is considered, F&WS would be consulted.

2. *Motorized or Heavy Equipment Use* - If motorized or heavy equipment is needed for colony site improvement or protection, contract administration and/or special contract provisions would be sufficient to protect the colony site, especially the cavity and relict trees. Areas of concentrated equipment or human use such as log decks or ORV trails would not be located within the colony site.

3. *Prescribed Burning* - When prescribed burning is planned within the colony site, adequate protection measures for cavity trees, such as hand raking debris away from the trees will occur. Plow lines would be excluded from the colony site.

4. ***Construction of Linear Rights-of-way such as Roads and Utility Lines*** - Roads, power lines or other linear rights-of-way would not be constructed within a colony site.

5. ***Existing Roads Through Colony Site*** - Woods roads and Forest Service roads through colony sites likely to adversely affect the RCW would be closed. All other roads can remain open.

6. ***SPB Suppression*** - When SPB infestations are detected within the 3/4 mile zone and control is necessary, the SPB Record of Decision and EIS would be followed with appropriate NEPA compliance on site-specific projects.

7. ***Nesting Season Disturbance*** - Any resource management activities that could disturb RCW during this nesting season (generally March 1 - July 31) would not occur. This includes habitat improvement activities unless the continued viability of the clan requires nesting season treatments.

f. ***Colony Site, Replacement/Recruitment Stand Management***

1. ***Mid-story removal and control*** - These activities could occur within colony sites and replacement/recruitment (R/R) stands on a biological priority basis. Mid-story hardwoods would be removed on an entire stand basis unless a site-specific evaluation identifies that their removal would decrease the suitability of the colony or R/R stands for RCW. A minimum of 10 acres should be treated. Hardwood control in natural hardwood areas, i.e., riparian area or hardwood stringers should be limited to the area within 50 feet of cavity trees. Pine mid-story should only be controlled to remove physical barriers to the cavity tree, potential cavity trees, and line of site between them.

2. ***Thinning*** - overstory pine would be thinned within colony sites and R/R stands if needed to reduce SPB risks. A 20-25 foot tree spacing is desired.

3. ***Replacement stands*** - these stands would be selected for all active colonies and should be as close as possible and not more than 1/2 mile from the colony site.

4. ***Recruitment stands*** - these stands would be selected on a compartment basis for those compartments in which the population goal is greater than the number of existing colonies. The number of recruitment stands would equal the compartment goal minus the number of colonies in that compartment. The recruitment stand should be between 1/4 and 3/4 of a mile from the colony site.

5. ***Monumentation*** - colony site monumentation must be updated before any planned habitat alteration project may occur within 1/4 mile of a colony site.

6. ***Restrictors*** - cavity restrictors would be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting.

7. ***Augmentation*** - augmentation of single male clans with subadult females would be done to maintain viability of single male colonies and maintenance for long term genetic diversity.

8. ***Artificial cavities*** - artificial cavities would be used to supplement existing cavities when cavities are limited, especially in support of augmentation efforts.

g. ***Foraging Habitat Management*** - At least 125 acres of well stocked (60-100 sq. ft. per acre BA) pine or pine-hardwood stands which are 30 years or older (40% or 50 acres > 60 years old) contiguous to the colony site would be managed for foraging habitat for each colony. As an option, a Forest may provide an equivalent foraging amount of 6350 trees > 10 inches DBH.

h. ***Monitoring*** - Each colony would be checked annually to determine the colony status and presence of birds. This would include: (a) 100% transect of suitable habitat in the compartment prescribed; (b) a repeat of sample compartments in populations greater than 100 active colonies; and (c) survey of suitable habitat not previously surveyed. A 10 year population trend survey developed utilizing sample (baseline) compartments in each RCW population would continue.

I. ***Special Area Management*** - Habitat manipulation and special protection measures may be implemented in special areas such as Wilderness in order to protect or recover RCW. The focus would be to maintain viability of essential RCW colonies in these areas. Only the minimum actions necessary would be used following appropriate NEPA compliance and a biological evaluation. Recruitment and replacement stands for these special areas would be established outside special areas to encourage RCW population growth outside the special areas.

ALTERNATIVE 3 - Activities under this alternative associated with cutting, colony site protection, and habitat management within 3/4 mile of RCW colonies are based on the "Proposed Action - Interim Policy on Cutting Within 3/4 Mile of RCW Colonies", that was distributed with the July 7, 1989, scoping letter for the EA (alternative 2) as modified by public issues, management concerns, and F&WS recommendations. Public issues and management concerns were identified through the NEPA scoping process. F&WS recommendations were provided through the consultation process on the Texas comprehensive RCW management plan and on the Policy on Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts dated March 27, 1989. All or part of these recommendations, as they are applicable to interim guidelines are included.

The following direction associated with RCW and other resource management applies within 1/4 mile of active and inactive colony site boundaries:

a. ***Thinning*** - The guidelines described when thinning within 1/4 mile of a colony site are the same as alternative 2.

b. ***Stand Regeneration Using the Clearcut Method*** - Regeneration using the clearcut method would not occur during the interim period unless a determination is made that RCW would be enhanced and not adversely affected as a result of a clearcut. Clearcutting is necessary when converting other species of pine occupying longleaf sites back to longleaf pine. Longleaf seedlings could then be planted to re-establish a longleaf pine stand. However, before any cutting occurs, a site-specific analysis would be conducted to ensure: (a) sufficient foraging would remain following the proposed action; (b) the proposed action would not cause habitat fragmentation; (c) R/R stands would not be isolated from the colony and; (d) the distribution of age classes in suitable habitat is maintained or enhanced by the proposed action.

Specific guidelines to achieve a desirable age class distribution to meet future RCW habitat needs would be evaluated before a clearcut is made. These include: (a) clearcuts would average less than 25 acres in size; (b) cutting would be done in the dominant age class and not necessarily the oldest; (c) cutting may only be considered if no more than 25% of the suitable habitat within 1/4 mile of the colony is less than 30 years of age and; (d) cutting may only be considered if no more than 10% of the suitable habitat within 1/4 mile of the colony is 10 years

old or less including non-stand size temporary openings due to insects, disease or other resource management activities.

There would be 5-6 relict longleaf trees and/or potential cavity tree per acre as well as one acre or larger clumps of longleaf pine containing at least 40 square feet basal area per acre longleaf retained in a clearcut.

c. *Stand Regeneration Using the Shelterwood or Seed-tree Method* - Regeneration using these methods would not occur within 1/4 mile of the colony site during the interim period. Existing shelterwood or seed-trees would not be removed during the interim period.

d. *Clearing for Non-timber Management Purposes* - Clearing 10 acres or less for non-timber management purposes would not occur if one or both of the following conditions exist.

1. More than 25 percent of the suitable habitat within 1/4 mile of the colony site is less than 30 years of age.

2. 10% of the suitable habitat within 1/4 mile of the colony site is 10 years old or less including all non-stand size temporary openings due to insects, disease or other resource management activities.

Clearings greater than 10 acres would not be considered.

The following direction associated with RCW and other resource management applies between 1/4 and 3/4 mile of active and inactive colony site boundaries under this alternative:

a. *Thinning* - The same guidelines described for use within 1/4 mile of the colony site apply to the area between 1/4 and 3/4 mile from the colony.

b. *Stand Regeneration Using the Clearcut Method* - Clearcutting and artificial regeneration may occur when natural regeneration is not feasible. These conditions include: (1) converting sites where other species of pine are occupying longleaf sites back to longleaf; (2) slash pine sites with very wet conditions due to a high water table; (3) damaged and sparse stands with 24 or more stems per acre > 10 inches DBH. However, before any cutting occurs, the site-specific analysis would ensure: (a) sufficient and accessible foraging for the colony would remain following the proposed action; (b) the proposed action would not cause habitat fragmentation; (c) R/R stands would not be isolated from the colony.

Specific guidelines to achieve a desirable age class distribution to meet future RCW habitat needs would be evaluated before a clearcut could occur. These include: (a) clearcuts would average less than 25 acres in size; (b) cutting would be done in the dominant age class and not necessarily the oldest; (c) cutting can only be considered if no more than 25% of the suitable habitat within 1/4 mile of the colony is less than 30 years of age and; (d) cutting can only be considered if no more than 10% of the suitable habitat within 1/4 mile of the colony is 10 years old or less including non-stand size temporary openings due to insects, disease or other resource management activities.

When regenerating a stand using the clearcut method to convert other species of pine growing on longleaf sites back to longleaf pine, 5-6 relict longleaf trees and/or potential cavity trees as well as one acre or larger clumps of longleaf pine containing 40 or more square feet of basal area per acre would not be cut. When regenerating sparse, damaged or wet slash pine sites, relict pine

trees and clumps of pine containing 40 or more square feet of basal area per acre would not be cut. Clearcuts would average less than 25 acres in size.

c. *Stand Regeneration Using the Shelterwood or Seed-tree Method* - In order to meet the long-range RCW habitat needs, stand regeneration would be necessary to even out the age class distribution within suitable RCW habitat. These new stands would be needed for RCW foraging and nesting habitat in the future. This process may begin during the interim period provided the action does not adversely affect the existing RCW populations. By using the shelterwood or seed-tree method of regeneration, new stands may be established while maintaining a component of potential foraging and nesting habitat. To ensure the regeneration of suitable habitat does not adversely affect RCW populations during the interim, a site-specific analysis would be done for each proposed regeneration. The site-specific analysis would evaluate: (a) foraging area amounts and continuity; (b) habitat fragmentation; (c) isolation of R/R stands and; (d) age class distribution of suitable habitat.

Specific guidelines for considering regeneration between 1/4 and 3/4 mile of a RCW colony are provided to ensure desired age class distribution within this area and maintenance or enhancement of existing suitable habitat. They are:

-- no regeneration in the oldest 1/3 of the suitable habitat within 3/4 mile of the colony site.

-- if possible, no regeneration in the predominant age class and not necessarily the oldest.

-- no regeneration if more than 25% of the suitable habitat within 3/4 mile of the colony is less than 30 years old.

-- no regeneration if more than 10% of the suitable habitat within 3/4 mile of the colony site is 10 years old or less including non-stand size openings due to insects, disease or other resource management activities.

If the above criteria is met and a shelterwood or seed-tree regeneration cut is considered, the minimum leave basal area to be left for loblolly and shortleaf pine is 30 sq. ft./acre and 40 sq. ft./acre for longleaf and slash pine.

Relict trees, potential cavity trees, and trees 10 inches dbh or larger meeting seed-tree requirements should be selected in that order for retention in the regeneration areas. Existing shelterwood or seed-trees would not be removed during the interim period.

d. *Clearing for Non-timber Management Purposes* - Clearings less than 10 acres may occur but not in the oldest 1/3 of the existing suitable habitat.

If a clearing greater than 10 acres is considered within suitable habitat that is at or above RCW rotation age (see RCW extended rotation guide, pg. 12) it may occur if it doesn't affect the oldest 1/3 of the existing suitable habitat. If a greater than 10 acre clearing is considered in suitable habitat below RCW rotation age, guidelines in FSH 2609.23R would be followed and consideration will be given to the potential adverse effects of habitat fragmentation, colony isolation, foraging habitat amounts and continuity, R/R stand isolation and age class distribution imbalances.

RCW colony site protection and management guidelines as well as foraging habitat management, monitoring and special area management, are the same as alternative 2. (See page 12).

One exception is the selection and management of corridors (see glossary for definition) to maintain habitat continuity between colonies, even though these areas are outside the specified 3/4 mile zone.

ALTERNATIVE 4 - Activities under this alternative associated with cutting, colony site protection, and habitat management within 3/4 mile of RCW colonies are consistent with the guidelines for proposed sales in the "Policy For Cutting Within 3/4 Mile of RCW Colonies on All Timber Sale Contracts, dated March 27, 1989.

The following activities associated with RCW and other resource management may occur within 3/4 mile of active and inactive colony site boundaries under this alternative:

a. *Thinning* - The guidelines described when thinning within 1/4 mile of a colony site under alternative 2 apply. In addition, at least 60 square feet basal area per acre would be retained.

b. *Stand Regeneration Using the Clearcut Method* - Clearcutting and artificial regeneration may occur when natural regeneration is not practical. These conditions including converting sites where other species of pine are occupying longleaf sites back to longleaf pine and in sparse or damaged stands. Clearcutting and planting of longleaf seedlings is necessary to re-establish a longleaf pine stand. Clearcutting and planting may also be necessary to regenerate slash pine stands on very wet sites. Damaged and sparse stands with 24 or more stems > 10 inches DBH would not be regenerated unless a site specific analysis indicates the stand(s) is not critical for RCW habitat. Damaged and sparse stands with less than 24 stems > 10 inches DBH may be regenerated. Regeneration under these conditions can be considered if:

1. stand is below RCW rotation age. (see RCW Extended Rotation Guide under Alternative 2)

2. site-specific analysis indicates action is not likely to adversely affect RCW habitat.

3. Regional Forester approves.

4. regeneration area is designed to consider the potential adverse effects of fragmentation, colony isolation, foraging habitat amount and continuity, isolation of recruitment or replacement stands and age class distribution.

c. *Stand Regeneration Using the Shelterwood or Seed-tree Method* - Would not be considered during the interim period. Existing shelterwood or seed-trees would not be removed during the interim period.

d. *Clearing for Non-timber Management Purposes* - Clearings for non-timber management purposes may occur during the interim period provided the site-specific analysis indicates RCW is not likely to be adversely affected by the action.

RCW colony site protection and management guidelines as well as foraging habitat management, monitoring and special area management, are the same as alternative 1. (See page 8)

ALTERNATIVE 5 - This alternative would only allow thinning within 3/4 mile of active or inactive RCW colonies. Guidelines for thinning under alternative 4 would be followed.

RCW colony site protection and management guidelines as well as foraging habitat management, monitoring and special area management, are the same as alternative 2. (See page 12)

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
I. Cutting activities:					
A. Within 1/4 mile of geometric center of colony site, excluding actual colony.					
1. Thinning	1. Allowed for forest management, SPB risk reduction, and RCW habitat improvement.	1. Same as Alternative 1 but emphasizes the retention of relict trees and potential cavity trees for nesting habitat.	1. Same as Alternative 2	1. Same as Alternative 2.	1. Same as Alternative 2.
a. BA range for pine.	a. Will vary by site conditions. Generally, a basal area range of 60-100 sq. ft/ac will maintain or increase tree vigor reducing SPB susceptibility. A minimum of 6,350 tree $\geq$ 10" DBH within 1/2 mile and contiguous to the colony is required.	a. 60-100 sq. ft. BA depending upon: --age of stand --site index --total stand density --foraging habitat availability. A minimum of 6350 trees $\geq$ 10" DBH within 1/2 mile and contiguous to the colony is required.	a. Same as Alternative 2, except basal area range increased from 60-110 sq. ft./ac. to allow more management flexibility for various site indexes.	a. Retain a minimum of 60 sq. ft. BA of pine.	a. Same as Alternative 3.
b. Tree retention priority.	b. Not specifically addressed. Silvicultural guidelines apply. Relict trees and potential cavity trees not protected.	b. (1) Relict trees. (2) Potential cavity trees. (3) Trees > 10" DBH that are not potential cavity trees. (4) Trees < 10" DBH.	b. Same as Alternative 2.	b. Same as Alternative 2.	b. Same as Alternative 2.
2. Clearcutting.	2. Allowed if adequate foraging habitat is maintained and colony site is not isolated from foraging habitat.	2. Allowed to convert off-site pine on longleaf sites to longleaf if pine or pine-hardwood type 30 years and younger consist	2. Allowed to convert off-site pine to long leaf if the following criteria are met: a. sufficient forag-	2. Allowed to regenerate understocked and damaged stands not identified as foraging habitat or to convert	2. Not allowed.

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Within 1/4 Mile (cont'd)		of less than 25% of the suitable habitat after harvest within 1/4 mile of colony site and if habitat improved for RCW. The following will be retained if available in regeneration areas: 1. all longleaf relict trees and 5-6 potential cavity trees per acre. 2. 1 acre or larger inclusions of longleaf with ≥ 40 sq. ft./ac. BA.	ing habitat. b. no fragmentation. c. R/R stands not isolated. d. maintain or enhance age class distribution,by: 1. cutting from dominant age class. 2. having no more than 25% ≤ 30 yr. age class. 3. having no more than 10% in 0-10 yr. age class including non-stand size temporary openings due to insects, disease or other resource management activities. The following will be retained if available in regeneration areas: 1. 5-6 relict trees and/or potential cavity trees per ac. 2. 1 acre or larger inclusions of longleaf with ≥ 40 sq.ft/ acre BA.	off-site pine back to longleaf pine if: a. Stand is below RCW rotation age. b. Analysis indicates RCW habitat not adversely affected. c. Regional Forester concurs. d. Design of regeneration area considers effects of:1. fragmentation. 2. colony. isolation. 3. foraging. habitat continuity. 4. foraging habitat amounts. 5. isolation of recruitment or replacement stands. 6. age class distribution. e. Sierra Club Legal Defense Fund and R-8 Timber Purchaser Council are notified. The following will be retained if available in regeneration areas 1. 5-6 relict trees or potential cavity trees per ac. 2. 1 ac. or larger inclusions of longleaf with ≥ 40 sq.ft/ acre BA.	

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Within 1/4 mile (cont'd)					
3. Shelterwood/seedtree.	3. Allowed under same criteria for clearcutting (I.A.2.).	3. Not silviculturally appropriate for stand conditions where regeneration is allowed.	3. Same as Alternative 2.	3. Same as Alternatiave 2.	3. Not allowed.
a. Leave basal area (BA)	a. Depends on species and site conditions. Guidance for determining provided by FS Silvicultural Handbooks(FSH 2409.21d and 2471.1-R-8.	a. N/A	a. N/A	a. N/A	a. N/A
b. Tree retention priority.	b. Not specifically addressed, would be determined at the project level based on desirable seed tree characteristics.	b. N/A	b. N/A	b. N/A	b. N/A
4. Cutting for other than timber management.	4. Not specifically addressed.				
a. Clearing < 10 acres.	a. Not specifically addressed. Site specific analysis at the project level would determine if clearing is likely to adversely affect RCW.	a. Allowed if criteria under clearcutting within 1/4 mile of colony center (1.A.2.) met.	a. Activity requiring the clearing should be relocated outside 1/4 mile zone if possible. If consideration is necessary, criteria under clearcutting within 1/4 mile will be followed.	a. Same as Alternative 1.	a. Not allowed.
b. Clearing > 10 acres.	b. Same as a. above.	b. Not allowed.	b. Not allowed.	b. Same as ALternative 1.	b. Not allowed.

TABLE 2 - ALTERNATIVE RESPONSES TO ACTIVITIES ASSOCIATED WITH CUTTING, COLONY SITE PROTECTION AND MANAGEMENT

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 mile					
1. Thinning.	1. Same as within 1/4 mile of colony site.	1. Same as within 1/4 mile of colony site.	1. Same as within 1/4 mile of colony site.	1. Same as within 1/4 mile of colony site.	1. Same as within 1/4 mile of colony site.
a. BA range.	a. Same as within 1/4 mile of colony site.	a. Same as within 1/4 mile of colony site.	a. Same as within 1/4 mile of colony site.	a. Same as within 1/4 mile of colony site.	a. Same as within 1/4 mile of colony site.
b. Tree retention priority.	b. Same as within 1/4 mile of colony site.	b. Same as within 1/4 mile of colony site.	b. Same as within 1/4 mile of colony site.	b. Same as within 1/4 mile of colony site.	b. Same as within 1/4 mi. of colony site
2. Clearcutting.	2. Allowed if adequate foraging habitat is maintained and colony site is not isolated from foraging habitat.	2. Limited to stands in the following conditions: a. slash pine sites where high water tables would restrict seedling survival and early growth. b. off-site pine occupying longleaf pine sites. c. understocked stands not identified as foraging habitat. d. damaged stands not identified as foraging habitat. Clearcuts will be planned to retain: (1) relict trees. (2) 5-6 potential cavity trees per ac. (3) 1 acre or larger inclusions of pine (longleaf pine in conversions) with 40 sq. ft./ac. BA or greater.	2. Can be considered where natural regeneration not feasible. such as converting longleaf pine; damaged or sparse stands with inadequate seed source not identified as foraging habitat; very wet slash pine sites. Site-specific analysis must consider effect of: a. depletion and location of foraging habitat. b. fragmentation of habitat. c. isolating R/R stands. d. disproportionate age class distribution To maintain or enhance age class distribution and nesting potential within suitable habitat. The following criteria will apply when considering stand regeneration using the clearcut method:	2. Limited to the same conditions and criteria described for clearcutting within 1/4 mile of colony site (1.A.2.).	2. Not allowed.

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 Mile (cont'd)			(2. Cont'd) a. cutting not planned in the oldest 1/3 stands of suitable habitat. b. Stand should be the dominant age class. c. No more than 25% will be less than 30 years old following regeneration. d. No more than 10% will be in the 10 yr. age class following regeneration including non-stand size temporary openings. If criteria is met and clearcutting is planned, the following will be retained if available in regeneration areas: 1. 5-6 relict trees. and/or potential cavity trees per ac. 2. 1 acre or larger inclusions of longleaf with $\geq$ 40 sq. ft./ac. BA.		

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 Mile (cont'd)					
3. Shelterwood/seedtree regeneration.	3. Allowed if adequate foraging habitat is provided.	3. Allowed for stands at or above RCW rotation age if more than 50% of the pine or pine/hdwd. stands within 3/4 mile of colony are 60 yrs. old or older and at least 50% remains following regeneration. Regeneration must occur in the dominate age class & not the oldest. Allowed for stands below RCW rotation age following direction in FSH 2609.23R and considering criteria of: (a) fragmentation. (b) colony isolation. (c) foraging habitat continuity. (d) foraging habitat amounts. (e) isolation of recruitment and replacement stands. (f) age class distribution.	3. Regeneration can be considered if the following criteria are met: a. the oldest 1/3 of the suitable habitat will not be affected. b. cutting can be planned in the dominant age class and not necessarily the oldest c. not more than 25% of the suitable hab. will be 30 years old or less following regeneration. d. not more than 10% will be 10 years old or less including non-stand size temporary openings due to insects, disease or other resource management activities, following regeneration If the above criteria are met, the site-specific analysis will evaluate potential effects of stand regeneration on the following: 1. fragmentation. 2. colony isolation. 3. foraging habitat. continuity. 4. foraging habitat amounts.	3. Not silviculturally appropriate for stand conditions where regeneration is allowed.	3. Not allowed.

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 Mile (cont'd)			5. isolation of recruitment or replacement stands. The following will be retained if available in regeneration areas 1. 5-6 relict trees and/or potential cavity trees per ac. 2. 1 ac. or larger inclusions of long-leaf with $\geq$ 40 sq. ft./ac. BA.		
a. Leave BA.	a. Depends on species and site conditions. Guidance for determining provided by FS Silvicultural Handbooks FSH 2409.21.d and 2471.1-R-8.	a. Loblolly: 20-30 sq.ft./ac. Shortleaf: 20-30 sq.ft./ac. Longleaf: 25-40 sq.ft./ac. Slash: 25-40 sq.ft./ac.	a. Loblolly: Min. of 30 sq. ft. BA. Shortleaf: Min. of 30 sq. ft. BA. Longleaf: 40 sq. ft. BA. Slash: 40 sq. ft.BA.	a. N/A.	a. N/A.
b. Tree retention priority.	b. Not specifically addressed, silvicultural guidelines apply.	b. (1) Relict trees. (2) Potential cavity trees. (3) Trees 10" + DBH meeting seed tree requirements.	b. Same as Alternative 2.	b. N/A.	b. N/A.

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 Mile (cont'd)					
4. Cutting for other than timber management.					
A. Clearings < 10 acs.	a. Not addressed specifically, coordinated at the project level.	a. Allowed following direction in FSH 2609.23R and if following criteria considered: (1) fragmentation. (2) colony isolation. (3) foraging habitat continuity. (4) foraging habitat amount. (5) isolation of recruitment or replacement stands. (6) age class distribution.	a. Not to occur in oldest 1/3 of the existing suitable habitat within 3/4 mi. of colony.	a. Not addressed specifically. Would be evaluated on a case by case basis.	a. Not allowed.
B. Clearings > 10 acs.	Not specifically addressed, coordinated at the project level.	Clearings in stands above RCW rotation age are allowed if greater than 50% of the stands within 3/4 mile of colony center are 60 years old or older and at least 50% of these stands will remain following the clearing. In addition, a biological evaluation must determine the action not likely to adversely affect RCW and F&WS concurs. Clearings in stands below RCW rotation	Clearings in stands above RCW rotation age are allowed if not planned in the oldest 1/3 of the existing suitable habitat. Clearings in stands below RCW rotation age are allowed if FSH 2609.23R direction is followed. The site-specific analysis for all clearings in this zone will consider the potential adverse effects of: 1. habitat fragmentation.	Not specifically addressed.	Not allowed.

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
Between 1/4 & 3/4 Mile (cont'd)					
B. Clearings > 10 acs. (cont'd)		age are allowed if FSH 2609.23R direction followed and consider design criteria in 4.a. above for clearing less than 10 acres.	2. colony isolation. 3. foraging habitat amounts & continuity. 4. R/R stand isolation. 5. age class distribution imbalances.		
II. Colony site protection.					
A. Cutting within colony sites.	A. Done only to protect or enhance RCW habitat or because hazardous to publics. Individual tree or group selection only.	A. Same as Alternative 1.	A. Same as Alternative 1.	A. Same as Alternative 1.	A. Same as Alternative 1.
B. Cavity Trees.	B. Will not be cut unless necessary for public safety or SPB control. USDI F&WS consultation necessary.	B. Same as Alternative 1.	B. Same as Alternative 1.	B. Same as Alternative 1.	B. Same as Alternative 1.
C. Motorized or heavy equipment use within colony site.	C. RCW population > 50 - min. April-June. RCW populations < 50 - excluded April-June.	C. Minimized through project and/or contract administration to protect colony site, cavity trees, and relict trees. Nesting season restriction applies.	C. Same as Alternative 2.	C. Same as Alternative 1.	C. Same as Alternative 2.
D. Log decks or other areas of concentrated equipment use.	D. Not specifically prohibited in colony site.	D. Prohibited in colony site.	D. Same as Alternative 2.	D. Same as Alternative 1.	D. Same as Alternative 2.

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
E. Prescribed burning.	E. To control hdwds. Minimize risk to cavity trees.	E. Designed to control hdwds. and minimize risk to cavity trees. Protect cavity trees from burning. No plow lines within colony site.	E. Same as Alternative 2.	E. Same as Alternative 1.	E. Same as Alternative 2.
F. RCW nesting season (generally March 1 - July 31).	F. RCW population $\geq$ 50 minimize activity. RCW population $\leq$ 50 exclude activity.	F. No potential disturbing activities allowed within colony site unless required to continue clan viability.	F. Same as Alternative 2.	F. Same as Alternative 1.	F. Same as Alternative 2.
G. Other concentrated human use activities such as ORV trail or camp sites.	G. Not specifically addressed. Implies they could be allowed.	G. Prohibited within colony site.	G. Same as Alternative 2.	G. Same as ALternative 1.	G. Same as Alternative 2.
H. Linear rights-of-way such as roads and powerlines.	H. Allowed - construction outside breeding season.	H. New construction prohibited within colony site.	H. Same as Alternative 2.	H. Same as Alternative 1.	H. Same as Alternative 2.
I. Existing roads through colony sites	I. Not addressed specifically.	I. Close roads that are adversely impacting RCW.	I. Same as Alternative 2.	I. Same as Alternative 1.	I. Same as Alternative 2.
J. SPB suppression	J. Guidelines for SPB suppression near RCW colonies in SPB EIS and ROD will be followed.	J. Same as Alternative 1.	J. Same as Alternative 1.	J. Same as Alternative 1.	J. Same as Alternative 1.

TABLE 2 - ACTIVITIES ASSOCIATED WITH CUTTING AND HABITAT MANAGEMENT WITHIN 3/4 MILE OF COLONY SITE AND COLONY SITE PROTECTION

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
III. Colony site Management	--reduce hardwood mid-story to less than 20 sq. ft. BA/ac. All stems 1" diameter within 50 ft. of cavity trees removed. --designate 200 foot boundary around aggregate of cavity trees and manage as colony site. --mark cavity trees and map colonies. --thin to 20-25 spacing between trees within colony site. --establish recruitment and replacement stands and manage as colony site. --designate and manage at least 125 acres of pine 30 years old or older and contiguous to the colony site as foraging habitat.	Management guidelines in the Texas Comprehensive Plan would apply to Alternatives 2-5. They consist of: --mid-story removal and control within colony sites and R/R stands on a biological priority basis. Includes removal of all hardwoods and a 10 acre minimum treatment configured to minimize effects on key hardwood areas such as riparian areas. --overstory pine thinning within colony sites and R/R stands if needed to reduce SPB risks. A 20-25 foot tree spacing used as a guide for thinnings. --replacement stands will be selected for all active colonies and should be as close as possible to the colony site and not more than 1/2 mile from the colony site. --recruitment stands will be selected on a compartment basis for those compartments in which the population goal is greater than the number of existing colonies. The number of recruitment stands will equal the compartment goal minus the number of colonies in that compartment. The recruitment stand should be between 1/4 and 3/4 of a mile from the colony site. --colony site monumentation must be updated before any planned habitat alteration project can occur within 1/4 mile of a colony site. --cavity restrictions will be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting. --argumentation of single male clans with subadult females will be done to maintain viability of single male colonies and maintenance for long term genetic diversity. --artificial cavities will be used to supplement existing cavities when cavities are limiting especially in support of augmentation efforts.		

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
IV. Foraging Habitat	IV. Management objectives are tied to acres by providing pine and pine-hardwood stands totaling a min. of 125 acs. which are 30 years old or older and contiguious with the colony site.	IV. Management objectives are tied to suitable trees by providing at least 6,350 pine stems ≥ than 10" DBH and 8,490 sq. ft. of pine BA within 1/2 mi. and contiguious with the colony site. Acreage may vary with site and stand conditions but should normally be available within 125 acres of well stocked pine or pine-hardwood.	IV. Same as ALternative 2.	IV. Same as ALternative 1.	IV. Same as ALternative 2.
V. Monitoring	V. Annual colony checks in prescribed prescriptions to determine status and 10 year trend survey.	V. Annual colony checks to determine status and presence of single birds in smaller populations. 100% survey of baseline and prescribed compartments in larger populations.	V. Same as Alternative 2.	V. Same as Alternative 1.	V. Same as Alternative 2.

TABLE 3 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
1. Include all RCW populations on National Forest under interim policy.	1. Forest Service Handbook 2609.23R direction applies to all populations.	1. Applies to management within 3/4 mi. of active colonies in populations with less than 250 active colonies. Populations with greater than 250 active colonies have exhibited stable or increasing population trend and will be managed following direction in FSH 2609.23R The Francis Marion population in South Carolina was to be excluded from this policy, however, due to the impact of Hurricane Hugo, it has been decided to include this population in the interim policy until an assessment of the population is completed.	1. Applies to mgmt. within 3/4 mi. of all colonies in populations with less than 250 active colonies. Populations with greater than 250 act-active colonies have exhibited stable or increasing population trend and will be managed following direction in FSH 2609.23R. Treatment of Francis Marion population same as Alternative 2.	1. Same as ALternative 2.	1. Same as Alternative 2.
2. Socio-economic effects on local economics, timber industry and County governments if cutting of National Forest timber is reduced.	2. Should not affect current planned outputs.	2. Potential effects analyzed and displayed for review and consideration by decisionmaker under environmental consequencies.	2. Same as Alternative 2.	2. Same as Alternative 2.	2. Same as Alternative 2.

TABLE 3 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
3. Prohibit all cutting within 3/4 mi. of colonies and protect existing habitat until EIS is completed.	3. Habitat management would follow FSH 2609.23R.	3. Emphasis would be on thinning pine stands. Regeneration would be by the shelterwood method unless certain criteria met to allow clearcutting that would improve RCW habitat.	3. Same as Alternative 2.	3. Only thinning would be allowed during the interim period unless regeneration needed for understocked. damaged stands or conversion to longleaf and RCW would not be adversely affected. Requires Regional Forester's approval.	3. Only thinning would be allowed during the interim period.
4. Modify existing forest management within 3/4 mile of RCW colonies.					
a. Change from even-aged management using clearcutting to uneven aged using selection management.	a. Even-aged management would continue with artificial and natural regeneration.	a. Even-aged management would continue but emphasis on shelterwood and seedtree methods of regeneration. Clearcutting would be done only under specific criteria to benefit RCW habitat.	a. Same as Alternative 2.	a. Regeneration under even-aged management would be minimal and limited to circumstances discussed above under item 3, Alternative 4.	a. No regeneration would occur during interim period.
b. Lower thinning basal area guidelines and raise shelterwood basal area guidelines.	b. Residual basal area tied to site. species and stand conditions.	b. Same as Alternative 1, with the following for leave basal areas for shelterwd/seed-tree cuts. shelterwood - 20-30 sq. ft. for loblolly and shortleaf; 25-40 sq.ft. for longleaf and slash. Thinning - 60-100 sq.ft.	b. Same as Altn. 1, with leave basal areas for Sheltwd/seed-tree cuts. Shelterwd.- Min. 30 sq. ft. for loblolly and shortleaf; min. 40 sq.ft. for longleaf and slash. Thinning - 60-100 sq. ft.	b. Same as Alternative 1, however, a minimum of 60 sq. ft./ac basal area is recommended for thinning. No shelterwood cuts would be made.	b. Same as Alternative 1 with a recommeded range of 60-100 sq.ft./ac basal area for thinning. No regeneration cuts would occur during interim period.

TABLE 3 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
c. Extend rotation ages.	c. Current RCW rotation ages apply as guidelines.	c. Cutting not allowed unless more than 50% of the suitable habitat is 60 years or older and at least 50% must be retained.	c. Cutting not allowed in the oldest 1/3 of suitable habitat within 3/4 mile of colony site.	c. Regeneration determined by stand conditions, not rotation age.	c. No regeneration would occur during interim period.
d. Re-establish and protect longleaf and associated species ecosystems.	d. Not specifically addressed in the handbook. Direction for protection and establishment covered in individual FLMP's.	d. Provided for by the alternative.	d. Same as Alternative 2.	d. Same as Alternative 2.	d. Same as Alternative 2.
e. Gradually remove midstory or not at all.	e. Existing guidelines will be followed. Site conditions and biologist's evaluation will determine rate and extent of midstory removal.	e. Provides for an aggressive midstory control program in colony sites on an RCW priority basis.	e. Same as Alternative 2.	e. Same as ALternative 2.	e. Same as Alternative 2.
f. Do not control SPB.	f. Direction in SPB EIS will be followed when SPB spots occur within 1/2 mile of RCW colonies to ensure spot suppression is necessary and can be carried out without adversely affecting RCW.	f. Same as Alternative 1.	f. Same as Alternative 1.	f. Same as Alternative 1.	f. Same as Alternative 1.

TABLE 3 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
g. Disregard FSH 2609.23R because it is ineffective.	g. Direction in existing Handbook would be followed.	g. Handbook used for RCW rotation ages and foraging habitat management guidelines.	g. Handbook direction for preserving oldest age classes supplemented by the alternative.	g. Handbook direction would be followed for foraging habitat management guidelines.	g. Same as Alternative 3.
h. Regeneration areas should be maximum of 10 acres.	h. Size of regeneration areas will be determined by a site-specific analysis considering potential adverse impacts such as colony isolation and habitat fragmentation.	h. Same as Alternative 1.	h. Regeneration areas limited to an average of 25 acres or less. No more than 10% of the area can be in the 0-10 year age class.	h. Same as Alternative 1.	h. Same as Alternative 1.
i. Don't manage circles, manage blocks identifiable on the ground.	i. Uses compartment system for identifying management options.	i. Uses 3/4 mi. from colony center for identifying management options.	i. Same as Alternative 2.	i. Same as Alternative 2.	i. Same as Alternative 2.
j. Manage according to site and condition of RCW and its habitat.	j. RCW requirements are expressed as ranges to allow for adaptation to on-site conditions.	j. Same as Alternative 1.	j. Same as Alternative 1.	j. Same as Alternative 1.	j. Same as Alternative 1.
k. Specify foraging needs in trees per acre and diameter class rather than basal area.	k. Emphasis on 125 acres of foraging within 1/2 mile of colony site.	k. Emphasis on actual number of $\geq$ 10" DBH pine stems available within 1/2 mi. of colony site.	k. Same as Alternative 2.	k. Same as Alternative 1.	k. Same as Alternative 2.

TABLE 3 - Alternative Responses to Issues

Issues	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
5. Increase survey so National Forest RCW colonies are located and protected. Increase monitoring so various forest management practices can be adequately evaluated.	5. Annual colony checks to determine status and 10 year trend survey.	5. Annual colony checks to determine status and presence of single birds. 100% transect in prescribed compartments. sample compartments repeated in populations greater than 100 active colonies. Survey suitable habitat not previously surveyed.	5. Same as Alternative 2.	5. Same as Alternative 1.	5. Same as Alternative 2.
6. Impacts to non-timber snd non-RCW resources.	6. Site specific environmental analyses will identify and evaluate potential impacts to RCW and other resources.	6. Same as Alternative 1.	6. Same as Alternative 1.	6. Same as Alternative 1.	6. Same as Alternative 1.

III. ENVIRONMENTAL CONSEQUENCES

This chapter discloses the environmental consequences that may result from implementing each of the 5 alternatives as interim standards and guidelines for RCW habitat protection and management. The environmental consequences are displayed by the associated activities that could affect, either directly or indirectly, the biological, physical, social, or economic components of the human environment. Direct effects are those that are caused by the activity and occur in the same place and time. Indirect effects are those caused by the activities that are removed in time and/or place, but that are still reasonably foreseeable. For purposes of discussion, the physical component considers the soil, water, and air: the biological component the plant or animal life; and the social and economic component considers those attributes or conditions affecting the economic livelihood or the physical, mental and spiritual well-being of the human population.

Each National Forest affected by the interim standards and guidelines has identified output levels for goods and services in their Land and Resource Management Plan (LRMP). An EIS was prepared for each plan and assessed the environmental consequences associated with producing these levels of outputs. The plans also identified standards and guidelines to avoid or mitigate these consequences. The standards and guidelines, as they relate to RCW, were based on the RCW Chapter of the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R, Ch. 400). Alternative 1 (no action) would leave Forest Plan implementation as it was prior to the March 27, 1989, Policy, so Forest Plan RCW related standards and guidelines would not change if alternative 1 is selected. Therefore, alternative 1 can be used as a base line for estimating the changes in outputs and environmental consequences associated with these outputs that could result form implementing alternatives 2 through 5. This EA should be read in conjunction with Forest Plan EIS's in order to understand the changes in environmental effects that are to be expected from the direction of these standards and guidelines.

Because of the limited scope of the proposal, particularly the time the interim standards and guidelines will be in effect (about 2 years), no cumulative effects are anticipated. Also, no irretrievable or irreversible commitment of resources would result by selecting any of the alternatives as interim standards and guidelines.

A. BIOLOGICAL

1. *Red-cockaded Woodpecker*

a. *Activity*: ***Thinning Within 3/4 Mile of Colony Site.***

Alternative 1

Direct Effects: Relict trees and potential cavity trees outside the colony site and R/R stands would not be protected and usually selected for removal. These trees are often less desirable to leave in a stand because of slow growth, lack of vigor and their susceptibility to insects and disease. Removal of these trees could limit the opportunities for RCW population growth.

Indirect Effects: Removal of relict trees and potential cavity trees could contribute to population decline and affect achievement of long-term population objectives.

Alternatives 2 - 5

Direct Effects: Relict trees and potential cavity trees outside the colony site and R/R stands would be retained during thinning operations. This would benefit RCW by providing potential nesting habitat which increases the opportunities for establishment of new colonies. Retention of these older slower growing trees increases stand susceptibility to SPB which could adversely affect RCW.

Indirect Effects: Since it takes about 60 years to produce a suitable cavity tree, retention of these older trees provides an opportunity for colonization 30-40 years sooner than Alternative 1. Possibility of achieving long-term population objectives is enhanced.

b. *Activity*: ***Regenerating Using the Clearcut Method.***

Alternative 1

Direct Effects: Providing adequate amounts of habitat suitable for recruitment is essential for establishing new colonies and population growth. This alternative provides for 40 percent of the 125 acre foraging area to be 60 years old or older. However, recruitment habitat is managed with a minimum of 10 acres at least 60 years old and located 1/4 to 3/4 mile from active colony sites. Given the new District RCW colony status information indicating a decline in smaller populations, limiting RCW to this small amount of habitat for population growth would likely result in a continued decline in the number of active colonies. Since there is no provision for retention of relict trees, potential cavity trees, or inclusions of longleaf pine within the clearcuts, they would generally take 30 years to provide foraging habitat and 60 years to provide nesting habitat.

This alternative would not provide as much suitable habitat for nesting opportunities as other alternatives. Potential for nesting is proportional to the acreage retained in older aged suitable habitat. Assuming a 70-80 year rotation, most 3/4 mile zones under this alternative, would have about 20-31% of the pine and pine-hardwood habitat greater than 60 years of age suitable for RCW nesting. Potential cavity tree formation at 60 years of age (heart rot) is relatively low and may not offset cavity tree mortality. Preferred nesting habitat would only be available in the colony site, recruitment and replacement stands (6% of the area).

The amount of time or duration that habitat is available for recruitment and nesting is important. This alternative would allow 70-80 year rotation within 3/4 mile of RCW colonies so suitable recruitment and nesting habitat will be available to RCW for a shorter period of time than other alternatives. Generally, it takes at least 60 years for a pine tree to have enough heart rot to become suitable for cavity excavation and nesting. For loblolly and shortleaf pine on a 70 year rotation, the tree could only be available 10 years. For

longleaf pine on an 80 year rotation, the tree would be available 20 years.

RCW may be adversely affected due to fragmentation of its habitat. This alternative is more likely than Alternatives 2-5 to adversely affect RCW by fragmenting its habitat and isolating the colony site from adequate foraging areas. Assuming a 70-80 year rotation, from 38% to 42% of the suitable habitat could be non-foraging habitat less than 30 years old.

Since more cutting is allowed under this alternative, the opportunities for disturbance from motorized equipment which could adversely affect the RCW is greater than Alternatives 2-5.

Indirect Effects: Short-term population declines will likely continue and long-term population objective will be difficult to achieve. Provisions for adequate amounts and dispersal of suitable habitat to maintain or enhance current population levels are lacking given the existing habitat and population conditions. If the population trend continues to decline, achievement of the population objectives will be difficult, if not impossible, and some populations may be extirpated.

Alternatives 2-4

Direct Effects: There will be more habitat suitable for recruitment and nesting under alternatives 2, 3 and 4 than alternative 1. These alternatives contain criteria when stand regeneration is considered within 3/4 mile of RCW colonies that will provide significantly more older aged stands suitable for recruitment and nesting habitat. In areas that do qualify for regeneration, these alternatives provide for an element of nesting and foraging habitat (relicts, potential cavity trees, and pine inclusions) to be retained in the regeneration areas during the interim period.

The affects of habitat fragmentation and colony isolation under these alternatives will be less than Alternative 1. Besides the provisions of these alternatives to retain significantly more older age classes, they also require stricter limits on the amount of pine in non-foraging conditions (less than 30 years old). These alternatives only allow a maximum of 10% in the 0-10 year age class and a maximum of 25% less than 30 years old within the 3/4 mile zone. Alternative 3 takes an additional step to avoid colony isolation by providing corridors (see glossary for definition) to maintain habitat continuity between colonies.

It is anticipated that potential disturbance from motorized equipment which could adversely affect RCW will be reduced from that expected under alternative 1 during the interim period, due to greater colony site protection and restrictions on road construction through the colony site that is provided by these alternatives.

Indirect Effects: Alternatives 2, 3 and 4 provide an opportunity to enhance RCW habitat using clearcutting if the site-specific analysis indicates RCW will benefit for this action. Provided other criteria are met, clearcutting could be done to convert off-site pine growing on longleaf pine sites back to longleaf, or regenerate sparse or damaged stands that are not suitable RCW habitat.

Retention of potential nest trees in clearcuts provides an opportunity for regeneration and colonization simultaneously during the interim period. However, the suitability for colonization will diminish as pine seedlings grow into the mid-story. Also, retaining these trees in a regeneration area will reduce the number of trees available for foraging in the future stand because of competition for sunlight, moisture and nutrients.

Alternative 5

Direct Effects: Alternative 5 allows no regeneration using the clearcut method, so the potential impacts associated with Alternatives 1-4 would not occur.

Indirect Effects: None anticipated during the interim period.

c. *Activity*: ***Regeneration Using the Shelterwood or Seed-tree Method.***

Alternative 1

Direct Effects: As with using the clearcutting method, provisions for providing suitable nesting habitat to promote the establishment of new colonies when regenerating with the shelterwood or seed-tree method, may cause further decline of active colonies under the current RCW habitat and population conditions. The potential adverse effects associated with shorter rotations and less available habitat in the older age classes discussed under regenerating using the clearcut method for this alternative, also apply to this activity.

The traditional shelterwood and seed-tree method only requires the retention of an adequate number of trees meeting the requirements for seed-trees. Consequently, relict trees, potential cavity trees or foraging habitat are not retained in regeneration areas. These trees are usually removed during the seed-tree or shelterwood cut. RCW could be adversely affected if available nesting habitat is limited. Some potential for colonization does exist as the shelterwood or seed-trees are generally retained 2 to 7 years (depending on species and site preparation) until regeneration is established. The Seed-trees will provide some potential nesting and foraging habitat until they are removed. If RCW colonize the shelterwood or seed-trees, the area would be identified as a colony site. It would be managed as such and the shelterwood or seed-trees would not be

removed. If not colonized and the seed-trees removed, it will take the stand 33 to 44 years to provide foraging habitat and 63 to 74 years to provide nesting habitat.

Indirect Effects: Stopping or slowing the declining population trend during the interim is not likely. Opportunities for the establishment of new colonies is less than Alternatives 2-5, especially if nesting habitat is limited. Achievement of long-range population goals under the current habitat and population would be more difficult than other alternatives.

Alternatives 2 and 3

Direct Effects: These alternatives require a non-traditional shelterwood and seed-tree method when regeneration is allowed, and criteria that must be met when planning regeneration so nesting habitat is not depleted. Alternative 2 requires the retention of a at least 50% of the suitable habitat (250 acre average) within 3/4 mile of the colony that is 60 years old or older. Alternative 2 also requires that cutting be planned in the predominant age classes and not necessarily the oldest. These criteria under Alternative 2 should reduce the loss of nesting habitat (70-100 year age classes) that could occur under Alternative 1 as well as enhance recruitment objectives. These provisions ensure that potential cavity tree formation exceeds cavity tree mortality.

Alternative 3 requires the oldest 1/3 (regardless of age) of the suitable habitat within 3/4 mile of the colony site to be retained. The benefits to RCW described under Alternative 2 would apply and possibly be increased. Retaining the oldest 1/3 of the existing habitat will ensure retention of the stands most suitable or likely to be most suitable for nesting. As with alternative 2, this alternative should ensure potential cavity tree formation exceeds cavity tree mortality.

For both alternatives 2 and 3, retaining of 5-6 relicts and/or potential cavity trees per acre, along with the seed-trees enhance the opportunities for colonization over Alternative 1. Retention of 5-6 relicts or potential cavity trees will also significantly increase the quality of nesting habitat once the stand reaches foraging age. These older aged trees should stimulate colonization in the first 10 year period.

Indirect Effects: Alternatives 2 and 3 increase the chance of stopping or slowing the declining population trend over Alternative 1 during the interim period. They also enhance future chances and opportunities of achieving the long-range population objectives better than alternative 1. This is due to the retention of the older pine stands, limitations on the amounts of non-foraging habitat that can occur within 3/4 mile of colonies, and providing suitable nesting habitat in regeneration areas. In areas where nesting habitat is not limited and significant amounts of older pine age classes are located within 3/4

mile of RCW colonies, regeneration will enhance long-range population objectives by ensuring a supply of future suitable habitat.

Retaining additional trees on regeneration areas will take longer than Alternative 1 for these stands to become suitable foraging and nesting habitat and reduce the number of pine trees available because of the competition for sunlight, moisture and nutrients. It will likely take 35 to 53 years to establish foraging habitat and 65 to 83 years for suitable nesting habitat. The additional trees will enhance the development of shade tolerant hardwoods in the regeneration areas. Hardwoods, could cause mid-story problems and adversely affect the RCW. Also, the increased competition will slow pine growth and the use of fire to control hardwoods will be delayed. The usefulness of relict trees and potential cavity trees for nesting will diminish over time as the pine grows into the mid-story.

If the trees retained in the regeneration areas are colonized, there could be problems maintaining the site in a suitable condition. In addition, the site will not remain as suitable for as long as sites are colonized in fully stocked stands. This is due to the initial low stocking levels of pines and a continued loss of trees due to mortality.

Alternatives 4 and 5

Direct Effects: These alternatives maximize the amount of foraging and potential nesting habitat as no shelterwood or seed-tree regeneration would occur during the interim. RCW is least likely to be adversely affected during the interim period under these alternatives. Stopping or slowing the declining population trend and enhancing future chances and opportunities of achieving long-range population objectives is most likely under these alternatives.

Indirect Effects: These alternatives would perpetuate the current stand age class distributions. If evenly distributed, the RCW would benefit. If age classes are predominately older and suitable foraging and nesting habitat are not limiting, perpetuating this condition could limit amounts and quality of future habitat needed to achieve the long-range population objectives.

d. *Activity* ***Survey and Monitoring.***

Alternatives 1 & 4

Direct Effects: The new information that has become available indicating a decline in the smaller populations suggest that monitoring procedures under these alternatives are not sensitive enough and do not provide enough information for populations with less than 250 active colonies. Colony status is usually determined when a compartment prescription is done once every ten years. Activity was noted indicating colony status, however, no information is gathered indicat-

ing clan size. A 10 year trend survey was developed using information that could be up to 10 years old. Consequently, a true indication of the current population trend was not being portrayed. Continued use of this monitoring system could lead to false assumptions of the true population condition and colony status for the smaller populations and allow activities within 3/4 mile of RCW colonies to occur that could unknowingly affect RCW colonies.

Indirect Effects: For the smaller RCW populations, continued use of the monitoring system may lead to failure to discover further decline and make achievement of long-range population objectives difficult or impossible.

Alternatives 2, 3 and 5

Direct Effects: These alternatives provide more monitoring of known colonies than in Alternatives 1 and 4. All colonies will be checked annually to determine status and the presence of single bird colonies. This system will allow for the continued assessment of the effects forest management practices and disturbances may have on RCW using current data for each colony. The monitoring information will also provide current information in planning habitat management to benefit RCW such as augmentation.

The survey procedures to locate uninventoried colonies are more intense than in alternatives 1 and 4. These alternatives call for a 100 percent transect survey in compartments being prescribed. By surveying more suitable habitat than under Alternatives 1 and 4, new RCW colonies will be located, protected and managed to enhance their habitat.

Indirect Effects: This survey and monitoring system will enhance the achievement of long-range population objectives.

e. *Activity* ***SPB Suppression.***

Alternatives 1-5

Direct Effects: Actions for SPB suppression within 3/4 mile of RCW colonies will be guided by the EIS and Record of Decision (ROD) for the Suppression of the SPB-Southern Region, February 1987. Controlling SPB spot spread will preserve RCW habitat. Cavity trees will be protected.

Indirect Effects: SPB risk reduction in foraging and nesting habitat losses will afford additional opportunities for RCW population expansion.

2. *Wildlife*

a. *Activity* — ***Prescribed Burning.***

Alternatives 1-5

Direct Effects: Prescribed burning is the primary tool used to control hardwoods under alternative 1. Under alternatives 2-5, it is used primarily to maintain the open park like pine stands once the hardwoods have been controlled. Regardless of the objectives, the effects on wildlife would be similar. Since most animals that co-exist with RCW evolved or adapted to the occurrence of fire in the ecosystem the associated wildlife populations are not expected to be adversely affected and in some cases may benefit.

Indirect Effects: Prescribed burning increases the amount, availability, and palatability of forage; changes in production of soft mast; changes in invertebrates populations; and the creation and destruction of snag trees.

Prescribed burning decreases the amount of fuels available to potential intense wildfires that could affect the habitat of wildlife including RCW.

b. *Activity* — ***Mid-story Removal and Control.***

Alternative 1

Direct Effects: Alternative 1 requires the hardwood mid-story to be reduced to less than 20 square feet of basal area per acre and all stems one inch or greater in diameter within 50 feet of cavity trees removed. This can be accomplished manually or with herbicides or in combination. Removing these stems affects wildlife species' habitat in different ways. For example, removing the mid-story will allow additional sunlight to the forest floor and stimulate vegetative growth there and provide additional forage for white-tailed deer. On the other hand, removal of mid-story will reduce the habitat of songbirds like hooded warblers (*Wilsonia citrina*) which use woody understory. Impacts are expected to be minimal because of the limited area being treated. The site-specific analysis NEPA documentation and appropriate Vegetation Management FEIS's for the Southern Region will be used to disclose such effects.

Indirect Effects: Because of the mobility of the species that may be affected and the limited amount of habitat treated, no indirect effects are anticipated.

Alternatives 2-5

Direct Effects: The effects will be similar to Alternative 1, but since these alternatives require a larger area to be treated (minimum of 10 acres) and all hardwood removed, wildlife species dependent on mid-story

vegetation are likely to be impacted more. The total habitat affected is approximately 13,500 acres (1345 colonies x 10 acres per colony) which is approximately 2% of the total pine and pine/ hardwood habitat within the 3/4 mile zone. Hardwood control should be held to a minimum in natural hardwood areas, i.e., stream bottoms, stringers, etc.

Indirect Effects: Because of the mobility of the species that may be affected and the limited amount of habitat treated, no indirect effects are anticipated.

3. ***Endangered, Threatened or Sensitive Species (other than RCW)***

a. ***Activity*** ***Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternatives 1-5

Direct Effects: There are 6 other known threatened or endangered species that could be affected by implementing these alternatives as interim standards and guidelines. The Biological Evaluation discloses that none of these species is likely to be adversely affected. (See Appendix A, Biological Evaluation). However, before any ground disturbing action is implemented under any of the alternatives, a site-specific analysis and biological evaluation will be done to ensure each project level proposed action is not likely to adversely affect any proposed, endangered, threatened or sensitive plant or animal species.

Indirect Effects: Populations of associated species could increase helping long-term recovery efforts for these species.

4. ***Timber Stand Establishment and Development***

a. ***Activity***: ***Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternative 1

Direct and Indirect Effects:

Traditional silvicultural methods for regenerating and thinning stands within 3/4 mile of RCW colonies would be used during the interim period. Trees retained in stands would not be selected using RCW desirability criteria. No additional trees would be retained for RCW in the clearcuts or shelterwood/seed-tree cuts that could affect stand establishment and retard stand development. Using the clearcut method with site preparation and tree planting, it will take the new stand about 30 years to provide suitable foraging habitat and 60 years for suitable nesting habitat.

Alternatives 2 and 3

Direct Effects: The traditional silvicultural practices for cutting have been modified under these alternatives to emphasize protection of essential RCW habitat.

Thinning practices have been modified. Emphasis is on retaining relict trees and other older and/or larger trees that could be suitable nesting habitat. Since growth has usually slowed on these trees, the rate of mortality due to insects and disease could increase over what would occur under Alternative 1. Stand development would likely take longer due to the retention of less vigorous and more vulnerable trees within the stand.

Stands would be established under these alternatives using non-traditional regeneration methods. Clearcuts would retain relict trees, potential cavity trees and clumps of pine that could be used by RCW as nesting and foraging during stand establishment and development. While benefiting RCW, these provisions will retard stand development. Stocking levels or number of new trees developing in the new stand will be lower and growth slowed as compared to clearcutting under Alternative 1 because of the older trees competing for sunlight, soil moisture and nutrients. Regeneration using the shelterwood or seed-tree method will be done differently than the traditional methods used under Alternative 1. The non-traditional shelterwood or seed-tree method of regenerating stands under these alternatives will retain relict trees and potential cavity trees in addition to the seed trees. The additional trees retained for RCW will increase competition for sunlight, soil moisture and nutrients thus reducing stocking and retarding development similar to the effects described in leaving trees in clearcuts. Stand establishment and development may take from 5 - 23 years longer than the traditional methods used under Alternative 1.

Indirect Effects: Stocking and growth rates in these stands could be reduced. Mortality within the stand over a rotation period could be increased because trees retained would be more susceptible to insects and disease.

Alternative 4

Direct Effects: No regeneration using the seed-tree or shelterwood methods would be done. The effects on stand development when thinning would be the same as Alternatives 2 and 3. The effects on stand establishment and development when clearcutting would be the same as using the clearcut method under Alternatives 2 and 3.

Indirect Effects: Similar to Alternative 2 and 3 but reduced because less regeneration would occur.

Alternative 5

Direct Effects: Only thinning is allowed. The effects on stand development discussed under Alternatives 2 and 3 would apply for stands thinned under Alternative 5.

Indirect Effects: Same as Alternative 2 and 3 for stand development.

B. *PHYSICAL*

1. *Soil, Water and Air Quality*

a. *Activity*: ***Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternative 1

Direct and Indirect Effects:

There would be no effects associated with implementing this alternative on soil, water and air quality other than those discussed in each Forest Land and Resource Management Plan EIS.

Alternatives 2-5

Direct and Indirect Effects:

It is likely that harvesting activities and projects anticipated in Forest Plans will be fewer during the interim period if these alternatives are implemented to protect RCW. If the amount of harvesting activities is reduced, there will be a subsequent reduction in the environmental consequences to soil, water and air quality associated with the various projects and activities anticipated as identified in each Forest Plan EIS. Further NEPA environmental analysis with appropriate documentation will be done on each proposed project to identify the site-specific environmental consequences of each proposed action within 3/4 mile of RCW colonies during the interim period.

b. *Activity*: ***Implementation of Interim Standards and Guidelines for RCW Habitat Management - mid-story Removal and Control.***

Alternatives 1-5

Direct Effects: ***Soil*** - The direct effects of mid-story removal and control by use of manual (handtool) methods would be negligible on the soil. The litter and duff layer is not disturbed and revegetation is not suppressed. Herbicides used for mid-story removal and control may affect soil productivity if application deviates from prescribed rates. Forestry herbicides are formulated to affect the more complex

metabolic processes of higher plants that are absent in micro flora. Since herbicides do not disturb soil, treated areas will not have erosion caused by the application. (FEIS, Vegetation Management in the Coastal Plain/Piedmont, January, 1989.) The use of prescribed fire (underburning) for mid-story removal and control during the growing season may affect soil productivity if improperly applied. Underburns more frequent than every three years do not allow the litter/duff biota to recover as a burn would with 3 to 4 year intervals. A burn with intervals of more than 5 year intervals would have little effect on biota and soil structure. Erosion and nutrient leaching may occur but underburns are usually light to moderate in intensity, so plants will be retained on site to minimize erosion. Nutrients would be retained through uptake by unburned plants.

Indirect Effects: ***Soil*** - None anticipated.

Direct Effects: ***Water*** - The use of manual (handtool) methods for mid-story removal and control will not affect water quality. Peak flows are not increased and stream nutrients and sediment loads are not increased because litter and duff are left intact and revegetation is not affected. The standard procedure for using herbicides to control mid-story vegetation is by applying a basal spray or single stem application. There will not be any herbicides broadcast or applied to the ground so ground water contamination is not likely. Erosion and sediment will not occur since the type of herbicide applications to be used will not disturb the soil. The use of prescribed fire may increase stream nutrients, stormflows and sediment loads. The amount of increase depends directly on fire severity. Underburns that will be used are light to moderate in intensity and if intervals between burns described under "soil" are followed, then no adverse conditions will develop.

Indirect Effects: ***Water*** - None anticipated.

Direct Effects: *Air* - mid-story removal and control by manual (handtool) methods and with the use of single stem or basal spray applied herbicides will not affect air quality. Prescribed fire is the only mid-story removal and control method that affects the air quality in and around the colony site. On a given site, underburns may occur once every 3-7 years. Effects on air quality is brief and intermittent in each area affected. The major effects of smoke on air quality are visibility reduction and a respiratory impairment near the burn. This is especially true near roads, airports, and in populated areas in and around the National Forests. These effects are reduced and controlled by following strict USDA Forest Service Prescribed Fire burning plans and State and Federal Air Quality laws.

Indirect Effects: *Air* - No indirect effects on air quality are anticipated since actions will comply with burning plans and applicable State and Federal air quality laws.

C. *SOCIAL*

1. ***Recreation***

a. ***Activity*:** **Implement Interim Standards and Guidelines for RCW Habitat Protection and Management.**

Alternative 1-5

Direct and Indirect Effects:

Recreation use in developed areas is not expected to be affected. Dispersed recreation could be affected if road or trials are temporarily closed to protect RCW and cannot be re-routed around colony site.

2. ***Recreation Development***

a. *Activity*: ***Implement Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternative 1

***Direct and Indirect Effects*:**

There should be no direct and indirect effects on planned recreation development from implementing alternative 1.

Alternatives 2-5

***Direct Effects*:** Recreation development activities are prohibited within the colony site, but not within the remainder of the 3/4 mile zone. Any clearing of suitable habitat will adhere to criteria for clearings under each alternative. Recreation development could be curtailed within 3/4 mile of a colony site if the criteria could not be met. If a comparable site can not be located further than 3/4 mile from an RCW colony, the recreation experience of National Forest visitors could be adversely affected.

***Indirect Effects*:** No long-term or indirect effects on these programs is anticipated because of the limited time the interim standards and guidelines will be in effect.

2. ***Cultural and Historical Resources***

a. *Activity*: ***Implementation of interim standards and guidelines for RCW habitat protection and management.***

Alternatives 1-5

Direct and Indirect Effects:

None anticipated.

3. ***Roads, Trails, and Utility Corridors***

a. ***Activity***: ***Implementation of Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternatives 1 and 4

Direct and Indirect Effects:

These alternatives will have little or no effect on these activities or programs as planned in Forest LRMP's. Construction and maintenance associated with these activities or programs is allowed, even within colony sites, if the actual work takes place other than during the RCW breeding season.

Alternatives 2, 3 and 5

Direct Effects: No construction would be allowed in colony sites. This provision could adversely affect planned activities under these programs if relocation outside of the colony site was not feasible. Forest visitors could be adversely affected due to closure of existing roads which are likely to adversely affect RCW.

Indirect Effects: No long-term or indirect effects on these programs is anticipated because of the limited time the interim standards and guidelines will be in effect.

D. *ECONOMIC*

1. ***Timber Harvest***

a. ***Activity*** ***Implement Interim Standards and Guidelines for RCW Habitat Protection and Management.***

Alternative 1

Direct and Indirect Effects:

No economic impacts are anticipated. Forest outputs of goods and services were planned considering standards and guidelines that followed the direction in the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R). Alternative 1 would implement the handbook during the interim period and Forest Plan Standards and Guidelines would be unchanged.

Based on data supplied by the Forest impacted by the proposed guidelines, approximately 81 million board feet of green timber could be harvested within 3/4 mile of RCW colonies in fiscal year 1990 under this alternative. This represents 7.1% of the total regional target of 1150 million board feet. Approximately 75 million board feet could be harvested from these areas in fiscal year 1991. These projected harvest volumes are the baseline to which the remaining four alternatives are compared (see table 4 below). The payments to the States (25% fund) will not be affected.

Alternatives 2-5

Direct Effects:

The primary economic consequences of these alternatives are related to the reduction of timber volumes that is expected because less timber is likely to be harvested from National Forest land under these alternatives. Sample data from affected forests, the Continuous Inventory of Stand Conditions (CISC) data base, and the FY 90 budget allocations were analyzed to assess the affects of alternatives on timber outputs and consequently economics. Table 4 shows the planned harvest volumes within the 3/4 mile zones by alternative.

Table 4 - Projected Timber Harvest Volumes in Million Board Feet and Percentage Which Can Be Cut Within 3/4 Mile Zones by Alternative.

	Alternatives				
Year	1	2	3	4	5
1990	84.4(100%)	68.1(81%)	70.1(83%)	64.4(76%)	58.3(69%)
1991	77.2(100%)	62.9(81%)	65.9(85%)	59.6(77%)	52.4(68%)

On a regional or statewide basis, the commercial forest affected by these alternatives is minimal. There are 12.5 million acres of the 323 million acres of commercial forests in the Southern Region are National Forest System lands. The area affected by the interim standards and guidelines is 672,000 acres (total area within 3/4 mile of all RCW colonies with less than 250 active colonies) or 5.3% of total NF acreage. The analysis conducted for this assessment indicates that implementing any one of these alternatives will likely result in a noticeable decrease in planned timber outputs on three of the 10 National Forest affected by the interim guidelines. The National Forest in Alabama, the Kisatchie NF in Louisiana and the National Forest in Mississippi's planned harvest volumes will be reduced by 11.3%, 9.3% and 5.5% respectively due to RCW mitigation in fiscal year 1990. These three forest, and others, will experience additional reductions in planned harvest volume, but these are due to changes in funding, tornado, hurricane and SPB losses,

as well as small roundwood marketing problems. Data analyzed indicated that approximately 58 million board feet in FY 1990 and 52 million board feet in FY 1991 of green timber could be harvested just by thinning existing stands within 3/4 mile of RCW colonies under these alternatives. This represents 69 percent and 68 percent respectively of the planned harvest volume within 3/4 mile of RCW colonies. These thinning volumes apply to all alternatives, however, only Alternative 5 restricts harvesting to thinning only. There will likely be opportunities under Alternatives 2, 3 and 4 where the regeneration criteria are met allowing additional volume to be harvested. These areas will be evaluated on a case by case basis during the site-specific analysis.

The economic impacts that could occur on a local level could be greater. There are many rural small communities adjacent to National Forests in the South. In some cases, local forest product industries in these communities rely heavily on trees from the National Forest for raw materials. If the planned flow of raw materials from the National Forests is interrupted due to implementing one of these alternatives, then local industries and ultimately the community, could be affected. Also, the 25% fund payment to the States could be reduced. These reductions would only occur during the limited time the interim standards and guidelines will be in effect, and may not occur at all if areas further than 3/4 mile of RCW colonies where timber could be harvested to make up any shortfalls in timber volume are substituted for areas not cut to protect RCW colonies.

Indirect Effects: No indirect effects are anticipated. Harvesting stands further than 3/4 mile from RCW colonies to substitute for volume lost from within 3/4 mile of the colony could cause a shortfall of volume in the later years when harvesting was planned in these stands.

2. *Minerals and Energy Resources*

a. *Activity* ***Implementation of Interim Standards and Guidelines for RCW Habitat Protection.***

Alternatives 1 and 4

Direct and Indirect Effects:

Generally, no additional consequences to these programs over what has traditionally occurred in the past when an endangered or threatened species or its habitat is involved. These alternatives contain fewer provisions that could curtail mineral and energy resource exploration within 3/4 mile of RCW colonies during the interim period than alternatives 2, 3, or 5.

There are proposed developments known at this time that will require further project level evaluation and analysis once proposals and locations within 3/4 mile of RCW colonies are known. A provision of the Crude Oil Windfall Profit Tax of 1980 (Section 29), gives tax credits for the development and production of non-conventional fuels. The tax credit expires on December 31, 1990. Therefore, it is anticipated that gas exploration and possibly development, will be stepped up during the interim period. A number of companies are currently developing methane gas from coal seams in the Black Warrior Basin of western Alabama under this program and are trying to meet the tax credit deadline. Only the Oakmulgee District in Alabama is affected at this time. It is possible that proposals for clearing associated with this activity will exceed the limits allowed under the guidelines of an interim policy. If this occurs, project level proposals will be analyzed in compliance with NEPA, NFMA and ESA and other applicable laws and consequently, clearings may be restricted.

Alternatives 2 and 3

Direct Effects: Minerals and energy exploration and/or development could be affected. Criteria for clearing must be met before these activities can occur within 3/4 mile of RCW colonies. While curtailment of these activities could have economic impacts, they are not likely to occur because of the small amount of clearing involved (drill sites average less than one acre) and mitigating measures included in lease contracts. Applications will be evaluated on a case by case basis at the project level through the site-specific analysis.

These alternatives could limit access to the drill sites as new road construction is excluded from colony sites under these alternatives. This impact should be minimal as access roads can be located outside the colony site in most cases.

The requests for gas exploration and/or development resulting from the Crude Oil Windfall Profit Tax of 1990 expiration date may necessitate requiring additional coordination and evaluation as discussed under alternative 1.

Indirect Effects: Opportunities to take advantage of the tax credits that are stimulating gas exploration and/or development within 3/4 mile of RCW colonies could be foregone. Outstanding or reserved mineral rights may need to be purchased by the Federal Government in order to prevent exploration or development activities that are likely to have an adverse affect on the RCW.

Alternative 5

Direct Effects: Clearings or access road construction for mineral exploration and/or development will not be allowed during the interim period. Exploration and/or development activities could be curtailed during

this time if they could not be located further than 3/4 mile from RCW colonies resulting in economic impacts. Generally the grid system used to explore for oil and gas is flexible enough to allow location of drill pad further than 3/4 from RCW colonies. However, this may not always be the case, especially in areas like the Oakmulgee District in Alabama where an area with a high concentration of RCW colonies coincide with the likely increase in requests for gas exploration and/or development resulting from the Crude Oil Windfall Profit Tax of 1990 expiration date. Additional coordination and evaluation at the project level as discussed under alternative 1 will be necessary.

Indirect Effects: Opportunities to take advantage of the tax credits that are stimulating gas exploration and/or development within 3/4 mile of RCW colonies could be foregone. Outstanding or reserved mineral rights may need to be purchased by the Federal Government.

Because of the limited scope of the proposal, particularly the time the interim standards and guidelines will be in effect (about 2 years), no cumulative effects are anticipated. Also, no irretrievable or irreversible commitment of resources would result by selecting any of the alternatives as interim standards and guidelines.

IV. *AGENCIES AND PERSONS CONSULTED*

On July 7, 1989, a letter requesting public issues and concerns regarding the proposed action of developing interim guidelines on cutting within 3/4 mile of RCW colonies was sent to the National Forests that will be affected. Forest Supervisors mailed the letter to the interested and affected publics and agencies on their Land and Resource Management Plan mailing list. Approximately 14,518 letters were mailed.

Representatives from the Sierra Club Legal Defense Fund and the Forest Service Timber Purchasers Council have been actively involved in the development of the March 27 Policy and provided input into the development of the proposed interim guidelines.

Consultation with the USDI, Fish and Wildlife Service (FWS) will be conducted per Section 7 of the Endangered Species Act on the preferred alternative. The type of consultation (formal or informal) will be determined by the findings in the biological evaluation (BE) of the selected alternative. If a "may affect" determination is found, then formal consultation will be requested. If a "not likely to adversely affect" determination is found, then concurrence (informal consultation) will be requested. Alternative 3 has been identified as the preferred alternative, therefore, concurrence with the BE finding of not likely to adversely affect will be requested. All project level actions in accordance with the interim guidelines will be covered under the Section 7 consultation for the selected alternative and will not require further consultation with FWS on the RCW. This does not eliminate the requirement to complete a project level BE to determine the effects on other proposed, endangered, threatened or sensitive (PETS) species and to determine if actions are in accordance with the interim guidelines or not. Actions not covered in the interim guidelines or not in accordance with the interim guidelines will require the appropriate consultation (based on project level BE) with the FWS.

APPENDIX A

BIOLOGICAL EVALUATION

BIOLOGICAL EVALUATION

Interim Guidelines for Protection
and
Management of RCWs

January , 1990

I. *INTRODUCTION*

This biological evaluation (BE) will determine if the five alternatives developed as interim standards and guidelines for red-cockaded woodpecker (RCW) habitat protection and management within 3/4 mile of RCW colony sites will likely adversely affect proposed, endangered or threatened species. Recent RCW surveys indicated a decline in the number of active colonies for most of the RCW populations with less than 250 active colonies (Costa and Escano, 1989). Most of these populations are small (< 50 active colonies) and have a high risk of extirpation. The primary cause of these declines in most populations is believed to be from mid-story encroachment in the colony sites. Other factors that may be contributing to these declines are isolation and demographic problems, lack of potential cavity trees, genetic problems, cavity competition, loss of cavity trees and habitat fragmentation. The Regional Forester decided immediate action was needed to stabilize these populations as well as new long range standards and guidelines for RCW management in order to reverse this decline and progress toward achieving RCW population objectives. He issued a Policy on Cutting Within 3/4 Mile of RCW Colonies on Existing Timber Sale Contracts on March 27, 1989. This policy provided criteria for modifying existing timber sales within 3/4 mile of RCW colonies as necessary to protect RCW habitat. The Policy was an urgent and temporary action designed to maintain the environmental status quo and protect RCW habitat. In May, 1989, a Notice of Intent to prepare an Environmental Impact Statement (EIS) to amend the Regional Guide for RCW management was published. This EIS will establish long-term management direction for the RCW. In the meantime, more detailed interim standards and guidelines for habitat protection and management within 3/4 mile of RCW colonies is needed. The five alternatives described in the attached Environmental Assessment (EA) were developed in response to this need. They are limited in time to about 2 years or when the long-range standards and guidelines are established through amendment to the Regional Guide.

These guidelines apply to RCW habitat (pine and pine-hardwood) within 3/4 mile of active and inactive RCW colonies in populations with less than 250 active colonies. (see Table 1.) This involves all of the populations on National Forests in the Southern Region except the Apalachicola population in Florida, and the Vernon-Kisatchie-Evangeline population in Louisiana. The populations that will be affected by the guidelines have a total of 1,343 identified colonies of which 981 are active (see Table 1). The 3/4 mile zones associated with these colonies comprise approximately 672,000 acres or 27 percent of the 2,470,000 acres of suitable habitat available to these populations. There are 76,600 acres within the 1/4 mile zone and 595,400 acres between 1/4 and 3/4 mile (acreage figures do not include the Francis Marion NF). These guidelines will replace Forest Service Handbook 2609.23 (FSH 2609.23) in the affected populations. These guidelines are in full accordance with the RCW Chapter and expand upon it providing more detailed protection and management direction.

II. *BIOLOGICAL BACKGROUND*

Many species listed as proposed, endangered or threatened (PET Species) are found throughout the range of the RCW, however, only seven (including the RCW) are found within the habitat types utilized by the RCW and are expected to be impacted by these guidelines. These are: Mississippi sandhill crane (*Grus canadensis pulla*), bald eagle (*Haliaeetus l. leucocephalas*), red-cockaded woodpecker (*Picoides borealis*), eastern indigo snake (*Drymarchon corais couperi*), gopher tortoise (*Gopherus polyphemus*), sand skink (*Neoseps reynoldsi*) and roughleaf loosestrife (*Lysimachia asperulaefolia*).

A. *RCW*

Twenty RCW populations on National Forest lands in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee are affected by these guidelines. Eight of these are identified as recovery populations. The population goals and current status of these populations are shown in Table 1.

TABLE 1 - RCW COLONIES AFFECTED BY GUIDELINES

	National Forests	Population* Objective Active Colonies	Number of Colonies*** Active	Inactive	Total
1	Bankhead NF (AL)	50	0	8	8
2	Bienville NF (MS)	286**	88	105	193
3	Caney RD., Kis. NF (LA)	20	0	3	3
4	Catahoula-Winn RD, Kis.NF (LA)	125	50	95	145
5	Cherokee NF (TN)	N/A	1	0	1
6	Conecuh NF (AL)	125**	16	36	52
7	Croatan NF (NC)	90**	45	28	73
8	Daniel Boone NF(KY)	50	6	18	24
9	DeSoto NF (MS)	250**	18	96	114
10	Francis Marion NF (SC)	500**	487	31	518
11	Homochitto NF (MS)	125	26	35	61
12	Oakmulgee Div., Tall. NF (AL)	250**	157	144	301
13	Ocala NF (FL)	138	14	42	56
14	Oconee NF (GA)	210**	1	10	11
15	Osceola NF (FL)	250**	50	52	102
16	Ouachita NF (AR)	36	16	9	25
17	Sumter NF (SC)	10	0	10	10
18	Talladega Div., Tall. NF (AL)	125**	5	156	161
19	Tuskegee NF (AL)	21	1	2	3
20	Uwharrie NF (NC)	N/A	0	2	2
	TOTAL	2661	981	880	1861

* - Population objectives from FSM 2609.23
** - Recovery Populations
*** - Number of colonies based on colony status surveys completed during the 1989 nesting season. Francis Marion information based on 1988 population trend surveys and population estimate. Except for the Francis Marion, these are not population estimates, but represent the current information on known colonies in district records.

The RCW is endemic to the pine forests of the southern United States. It is found from Texas to the Carolinas. The species is non-migratory and clans maintain year-round territories near their nesting and roost trees. One of the more unique features of the RCW's life history is its selection of mature, living pines for cavity excavation. It is the only woodpecker species to excavate a nesting cavity in living pine trees exclusively. Most active colonies are found in open, park-like pine stands. RCW exhibit a distinct preference for living pine for foraging as well. For a more detailed description of the RCW and its ecology see the RCW Recovery Plan (USDI 1985).

The RCW was identified as a rare and endangered species in 1968 (USDI 1968), and was officially listed as endangered in 1970 (Federal Register 35:16047). With passage of the Endangered Species Act (ESA) in 1973, the RCW received federal endangered species protection. Following this listing, the Forest Service (FS) in July 1975 amended its FSH 2609.23, including a chapter (420) on management of the RCW. In 1979, under the authority of the ESA, the USDI Fish and Wildlife Service (FWS) approved a RCW Recovery Plan (USDI 1979). In October 1979, following approval of the recovery plan, the FS revised the RCW chapter of its FSH 2609.23 to include discussion of species habitat requirements and guidelines for standard management practices.

In 1985, the FWS issued an approved revision of its 1979 RCW Recovery Plan. This revision was prepared cooperatively by the FWS and FS. It identified 15 RCW populations needed for recovery, 12 of which are on National Forest. Recognizing its responsibility for contributing to the recovery of the RCW, as outlined in the revised recovery plan, the FS again revised its handbook guidelines for the RCW in March 1985. In addition to the 1980 amendment the new chapter identified individual National Forest population objectives and established detailed guidelines for nesting habitat management.

The 1985 handbook revision guided FS management of RCW until March 1989 when the Regional Forester issued a policy on cutting within 3/4 mile of RCW colonies on existing timber sale contracts. This Policy did not replace FSH 2609.23, but supplemented it to provide criteria for modifying existing timber sales within 3/4 mile of RCW colonies as necessary to protect RCW habitat. Two of the larger RCW populations, the Apalachicola in Florida and the Vernon-Kisatchie-Evangeline in Louisiana, are still being managed under the 1985 handbook guidelines.

Prior to Hurricane Hugo, the Francis Marion RCW population in South Carolina was exempt from the March 27, 1989, Policy and would not have been included under the interim standards and guidelines. This population exceeded 250 active colonies and had increased about 10 percent since 1981 (Hooper, unpub.). However, the hurricane had a catastrophic effect on the RCW population and its habitat. Therefore, any action that may affect RCW habitat within 3/4 mile of RCW colonies on the Francis Marion National Forest will now be considered under the interim standards and guidelines being evaluated in this BE.

The only statistically valid RCW population estimates are the 17 baseline survey samples completed in 1980-1982. Since that time, 100 percent checks of known colonies have been completed in most of the RCW populations, but except for the Francis Marion, population estimates have not been repeated. Table 2 shows the 1980-1982 population estimates and the number of active colonies actually known in 1986 and 1989. This information cannot be used to interpret trends, however, 5 populations have gone extinct since Foreset Service records have been kept on the RCW--2 since the baseline surveys were completed. In addition, 3 populations are on the verge of extinction with only 1 active colony known to exist. Over two-thirds of the RCW populations currently have less than 50 active colonies. These small populations have a high risk of extinction because of demography, long inter-active colony distances and small number of active colonies. Because of the lack of repeat population estimate surveys, RCW population trend interpretations are difficult. The only information available for trend analysis is the annual surveys conducted to determine the status of known colonies. A certain number of colonies are visited annually--the

number varies by year and Forest. The percent of those colonies visited that are active, plotted by year is the best data currently available from which to interpret trends.

Surveys based on visits to known colony sites only, as opposed to systematic area searches, have two opposing biases. They tend to overestimate the number of inactive colonies and, due to the tendency to select previously active colonies for survey, also overestimate the percent of active colonies in the sample. Being aware of the inherent bias associated with this type of survey at least allows a more realistic interpretation of the data. Even with allowance for the bias, survey data from 1970-86 indicate that most of the smaller RCW populations were decreasing (Costa & Escano). Analysis of the colony status check data for 1987, 1988 and 1989 has not changed these interpretations. The percent of the colonies surveyed found to be active plotted by year are shown in Figure 1 except the Cherokee, Oconee and Tuskegee populations which have inadequate data. All the populations affected by this policy except the Francis Marion and Osceola appear to be declining. The trend of the Francis Marion after Hugo is not known, but had increased about 10 percent between 1980 and 1988.

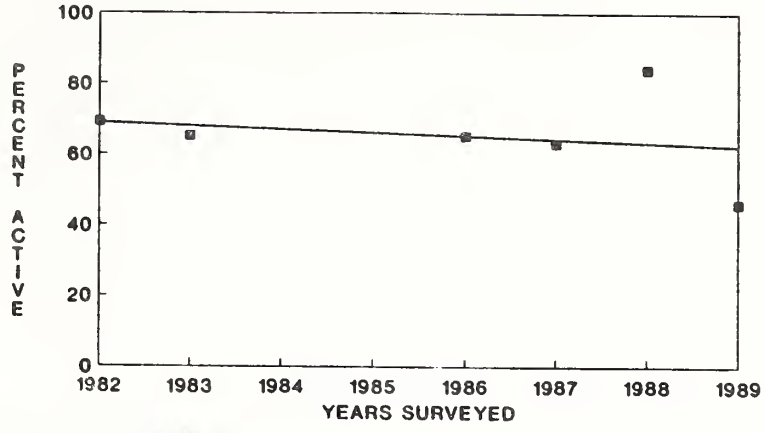
TABLE 2 - RCW POPULATION STATUS

POPULATION	1980-82 Pop. Est.	1986 No. Active	1989 No. Acitve
1. Bankhead (AL)	8	1	0
2. Bienville (MS)	85	127	88
3. Caney (LA)	N/S	0	0
4. Catahoula-Winn (LA)	110	82	50
5. Cherokee (TN)	N/S	1	1
6. Conecuh (AL)	15	32	16
7. Croatan (NC)	N/S	50	45
8. Daniel Boone (KY)	N/S	7	6
9. DeSoto (MS)	48	25	18
10. Francis Marion (SC)	427	483	487*
11. Homochitto (MS)	26	40	26
12. Oakmulgee (AL)	150	195	157
13. Ocala (FL)	38	22	14
14. Oconee/Hitchiti (GA)	N/S	12	11
15. Osceola (FL)	44	55	50
16. Ouachita (AR)	N/S	20	16
17. Sumter (SC)	0	0	0
18. Talladega (AL)	20	11	5
19. Tuskegee (AL)	N/S	0	1
20. Uwharrie (NC)	N/S	0	0

N/S - No Survey
* - Pre-Hugo

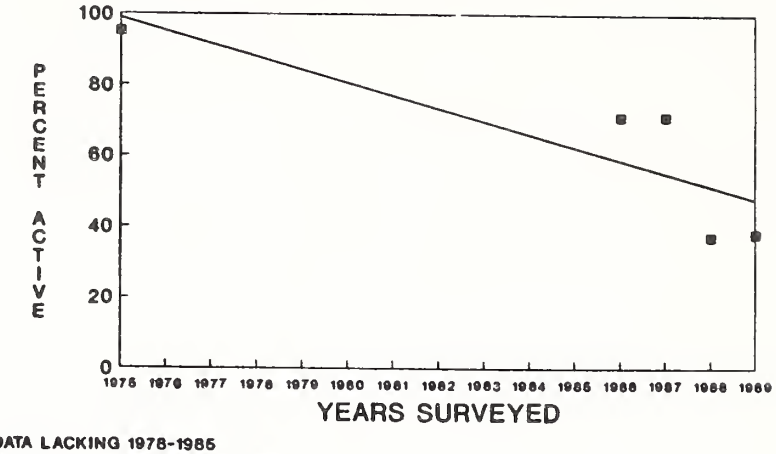
Several factors have probably contributed to the current status and trends of RCW populations. Generally, RCW population expansion is limited by existing forest age class distribution. In many forest the majority of nesting habitat is in old-growth relict trees. Many of these old trees are being lost to natural mortality and timber management practices. If availability of suitable cavity trees from increasing stand age is not adequate to offset this loss, decreases in RCW populations are possible. Even though stand age is increasing in most forests with RCW's, increases in suitable

BIENVILLE
RCW POPULATION



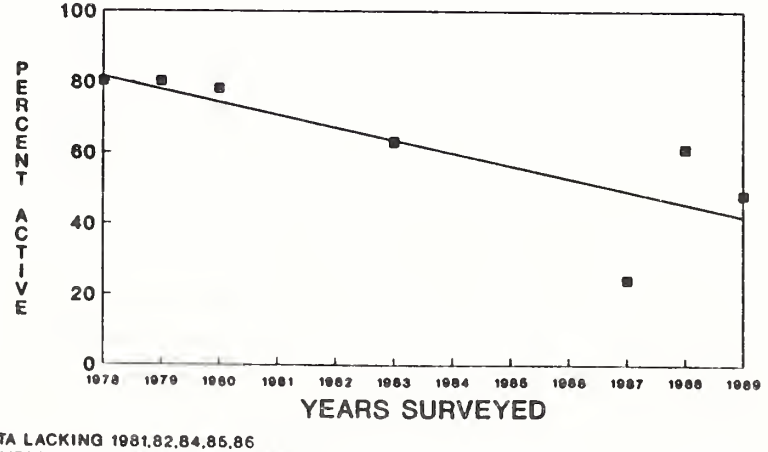
SAMPLE > 20% 1982,83,86-89
DATA LACKING 1984-86

CATAHOULA-WINN
RCW POPULATION



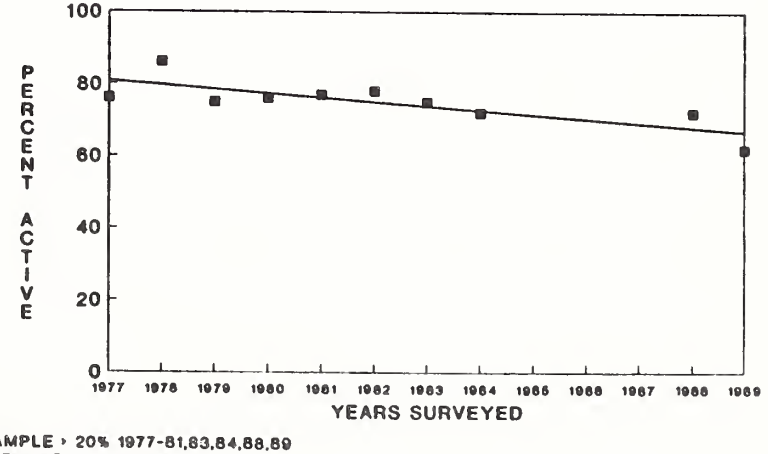
DATA LACKING 1978-1985
SAMPLE > 20% 1975,86,87,88,89

CONECUH
RCW POPULATION



DATA LACKING 1981,82,84,85,86
SAMPLE >20% 1978,79,80,83,87,88,89

CROATAN
RCW POPULATION



SAMPLE > 20% 1977-81,83,84,88,89
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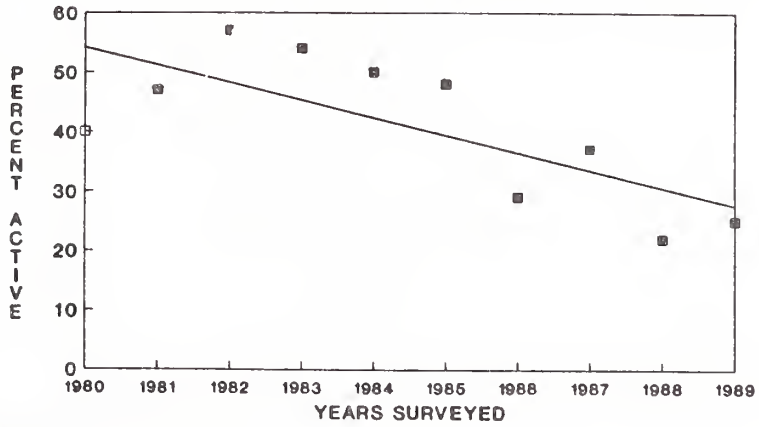
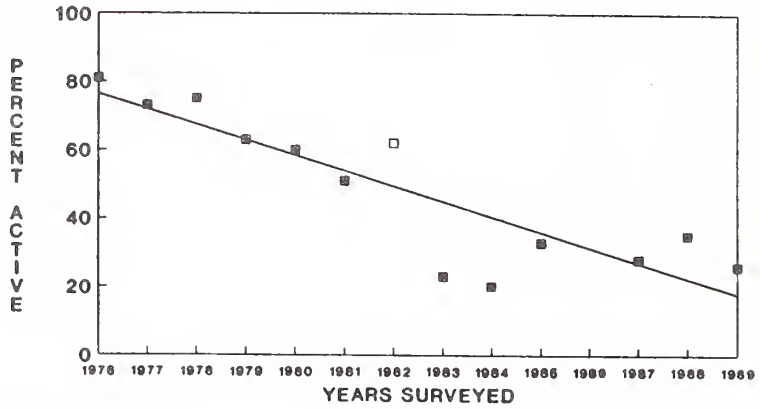
DANIEL BOONE
RCW POPULATION



□ SAMPLE < 20% 1980
■ SAMPLE > 20% 1981-89

DESOTO
RCW POPULATION



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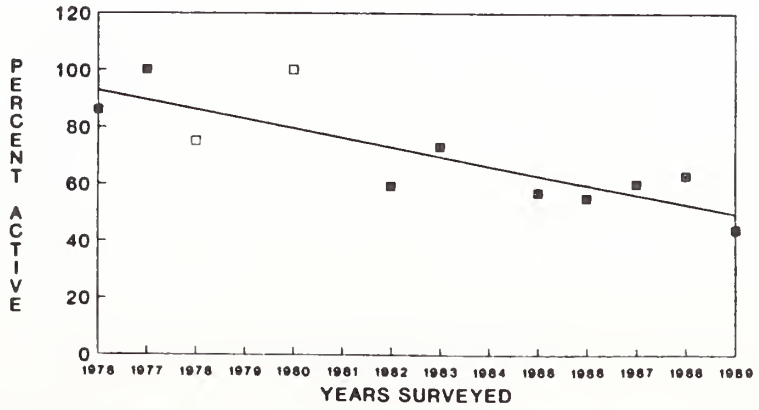
DATA LACKING 1986

HOMOCHITTO
RCW POPULATION



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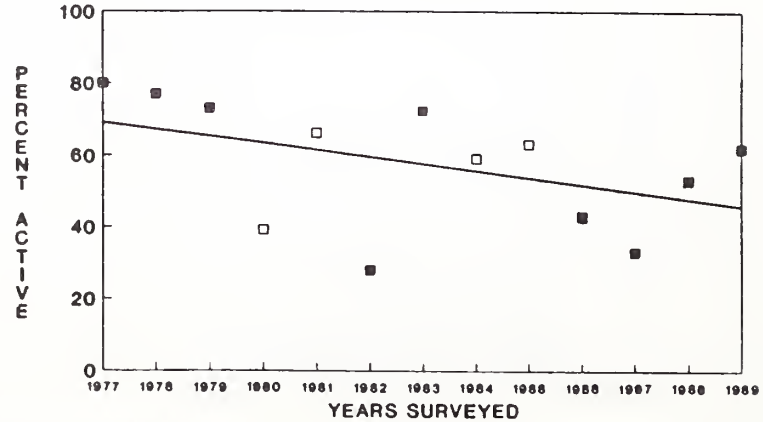
DATA LACKING 1979,81,84

OAKMULGEE
RCW POPULATION



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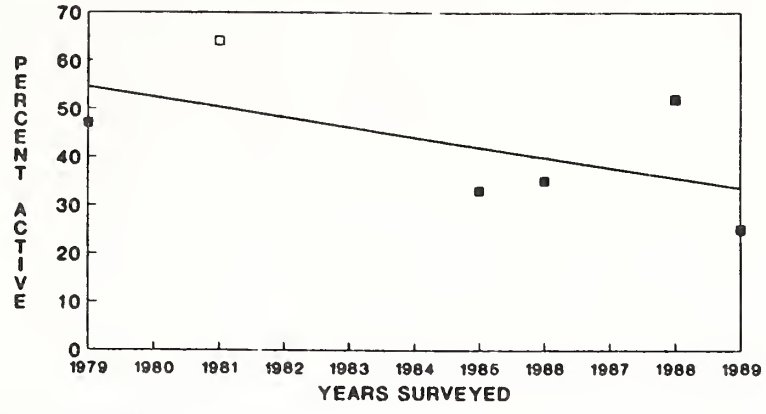
OCALA
RCW POPULATION



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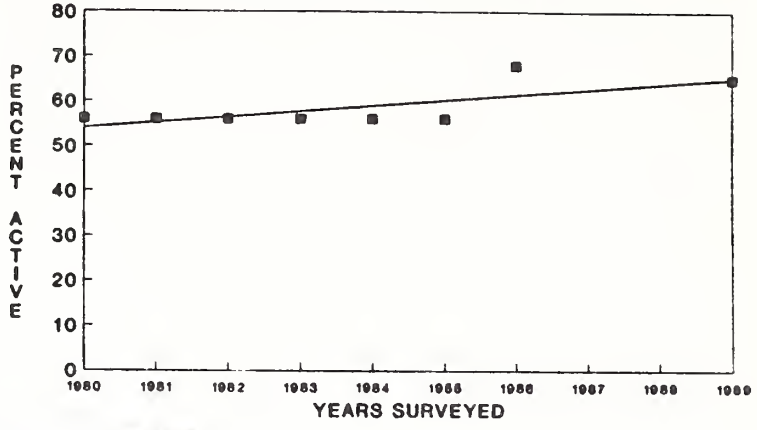
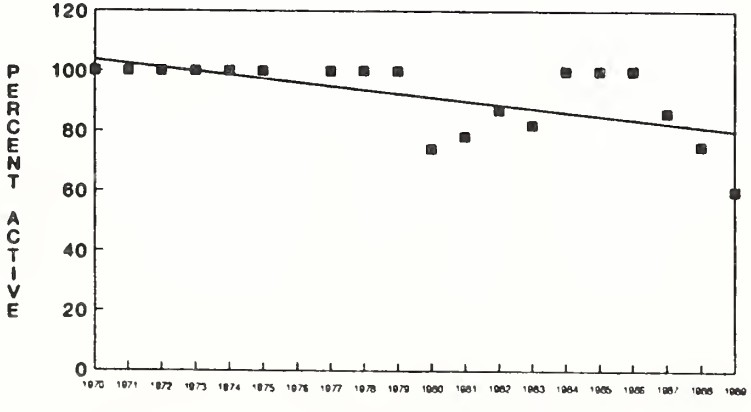
OSCEOLA
RCW POPULATION



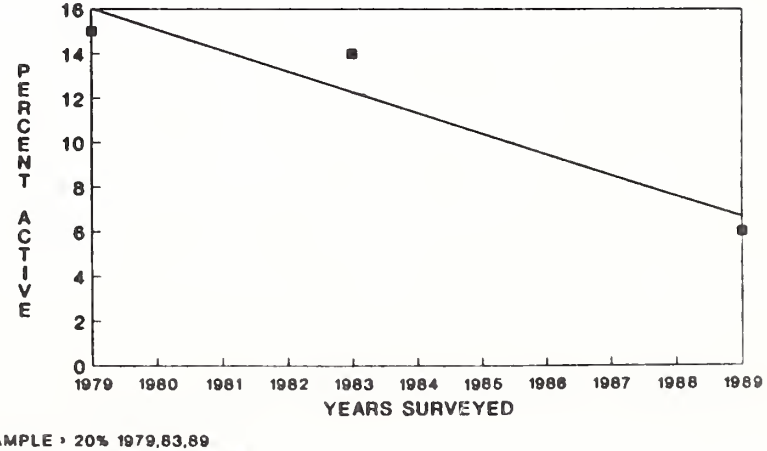
■ SAMPLE > 20% 1980-88,89
DATA LACKING 1987,88

OUACHITA
RCW POPULATION



DATA LACKING 1976
■ SAMPLE >20%

TALLADEGA
RCW POPULATION



■ SAMPLE > 20% 1979,83,89
DATA LACKING 1980-82,84-88

nesting habitat are not likely to offset cavity mortality for at least 10 years. In over half the forest high quality potential cavity trees will not be available for another 20 to 40 years.

Rapid population declines in some RCW populations are due to hardwood mid-story encroachment. This condition in colony stands increase competition for RCW cavities by other species as well as creating a favorable environment for nest predation. Conversely, in forests with a history of prescribed burning and, therefore, no mid-story problem, healthy RCW populations are present. Slow RCW population declines on such forest can probably be attributed to natural mortality of cavity trees and the nesting habitat bottleneck previously discussed. On forests where availability of suitable cavity trees is not limiting, mid-story control should favor population increases even during the bottleneck period.

Genetic and demographic factors further compromise the health of small RCW populations. Undoubtedly, there exist a minimum population level even with acceptable habitat conditions at which populations may be lost.

Rangewide, population fragmentation continues to be a serious problem. Approximately 80 percent of the RCW populations on FS lands are more than 50 miles apart. Frequently the habitat between populations is not contiguous forested acreage and is often in private ownership. Known RCW populations in the 1970's are gone. Population fragmentation could have contributed to their decline and disappearance. These populations were small (less than 25 known colonies) and most colony sites exhibited significant hardwood encroachment. The remaining small, isolated populations exhibiting population declines are prime candidates for extirpation and therefore must be the focus for renewed conservation efforts. The majority of FS populations fit this category, with 66 percent of them having less than 50 active colonies.

B. *Other PET Species*

The Mississippi sandhill crane's (endangered species) range is limited to Jackson County, Mississippi, including portions of the DeSoto National Forest. The preferred habitat is semi-open and wet pine savanna. There is potential for 3/4 mile zones to extend into crane habitat.

The bald eagle (endangered species) is found throughout the southeast, however, nesting is limited primarily to peninsular Florida and to a much lesser extent the coastal areas of Louisiana, Mississippi and South Carolina. Nesting habitat is generally associated with large bodies of water. The potential does exist for 3/4 mile zones to extend to waters edge, thus encompassing active or potential eagle nesting habitat.

The eastern indigo snake (threatened species) was historically found from extreme southeastern South Carolina, the coastal plains of Georgia, throughout Florida, southern Alabama and Mississippi. Currently the species is known to occur in Florida and Georgia. A reintroduction was made on the DeSoto NF in Mississippi, however, its success or failure is unknown. This species should be given consideration on all three NF in Florida, the Conecuh in Alabama and the DeSoto. The potential for the indigo snake to occur with 3/4 mile zones definitely exist.

The gopher tortoise is listed as threatened in Louisiana, Mississippi and west of the Tombigbee and Mobile Rivers in Alabama. The only area where this species is likely to occur on NF land in conjunction with RCW's is on the DeSoto NF in Mississippi.

The sand skink (threatened species) is found in only 5 counties in central Florida. The Ocala NF is the only FS land where this species is likely to be associated with RCW's.

The roughleaf loosestrife (endangered) is the only listed plant species likely to be found in RCW habitat. It is indigenous to the sandhills and coastal plains of the Carolinas. Potential occurrence in 3/4 mile zones is limited to the Croatan NF in North Carolina.

III. *PROPOSED ACTION*

A. *General*

The proposed action is to establish interim regional standards and guidelines for RCW habitat protection and management within 3/4 mile of active and inactive RCW colonies in RCW populations with less than 250 active colonies. The interim standards and guidelines will be in effect until the analysis process is completed for the EIS supplement and Forest plans are amended to include the new RCW protection and management standards and guidelines. The scope of this proposal is limited to proposed activities that may affect RCW or its habitat within 3/4 mile of the RCW colony site.

Any action that may affect RCW habitat considered within 3/4 mile of RCW colonies will require further site-specific (project level) compliance with the National Environmental Policy Act (NEPA), National Forest Management Act (NFMA), and Endangered Species Act (ESA) including consultation with the USDI Fish and Wildlife Service (F&WS). Compliance with any other applicable laws will be required also before any such projects or actions are carried out.

Inactive colonies and associated habitat are included in the scope of this proposal because they are needed to achieve population objectives. The inactive colony sites offer the best sites for colonization and are key for population growth. Maintenance of suitable habitat conditions across all colonies ensures that the ability to achieve population objectives are not foregone and the highest probability of capturing dispersing RCW is achieved.

The proposed action has two primary objectives:

1. Halt the current decline in RCW populations through maximizing the opportunity for colonization.

2. Provide management direction that will not foreclose future RCW management options that could be selected as long-range management strategy following the EIS process.

The alternatives were developed using elements identified in FSH 2609.23, Public input through scoping, RCW Recovery Plan, Texas Comprehensive Plan, RCW Status and Management in the Southern Region in 1986 and the FWS Biological Opinion on the Texas Comprehensive Plan.

B. *Specific Guidelines*

All alternatives are based on two primary management zones around active and inactive RCW colonies. The zone within 1/4 mile of the colony center is most sensitive to potential impacts such as habitat fragmentation, colony isolation and foraging habitat depletion. The zone between 1/4 and 3/4 mile from the colony center is important for future colonization (nesting habitat), population recruitment and foraging habitat. Table 3 is a brief summary of allowed and proposed management activities by alternative, which have the greatest potential to affect the RCW. For a more detailed description of what is allowed under each alternative and the required criteria, see the attached Environmental Analysis.

TABLE 3 Differences in Management Activities by Alternative

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
I. Cutting Activities A. Thinning	A. Allowed in both mgmt. zones for forest mgmt., SPB risk reduction and RCW habitat improvement.	A. Similar to Alternative 1, but emphasizes protection of potential nesting habitat.	A. Same as Alternativve 2.	A. Same as Alternative 2.	A. Same as Alternative 2.
B. Regeneration Cutting 1. Clearcut	1. Allowed if adequate foraging habitat is maintained and colony site is not isolated from foraging habitat. Both mgmt. zones.	1. In 1/4 mile zone: Allowed to convert off-site pine to long leaf. In the 1/4-3/4 mile zone slash pine on wet sites and understocked and damaged stands not identified as foraging habitat are included.	1. Same as Alternative 2.	1. Allowed to regenerate understocked and damaged stands not identified as foraging habitat or to convert off-site pine back to longleaf pine.	1. Not allowed.
2. Shelterwood/ Seedtree	2. Allowed under same criteria for clearcutting (I.B.2) in both zones.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in the 1/4 mile zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Same as Alternative 2 in 1/4 mile zone. Can be considered in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat is unaffected.	2. Not silviculturally appropriate for stand conditions where regeneration is allowed in both zones.	2. Not allowed.
C. Cutting for Other Than Timber Management. 1. Clearing < 10 acres.	1. Not addressed specifically, coordinated at the project level in both zones.	1. Allowed if criteria under clearcutting within 1/4 mile of colony center (I.B.1.) met in 1/4 mile zone. Allowed with mitigation direction in FSH 2609.23R in 1/4-3/4 mile zone.	1. Activity requiring the cleaering should be relocated outside 1/4 mile zone if possible. If consideration is necessary, criteria under clearcutting within 1/4 mile will be followed. Not to occur in oldest 1/3 of the existing suitable habitat in 1/4-3/4 mile zone.	1. Same as Alternative 1 in both zones.	1. Not allowed in either zones.

Specific Activities	Alternative 1 Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
2. Clearings > 10 acres.	2. Not specifically addressed, coordinated at the project level in both zones.	2. Not allowed in 1/4 mi. zone. Allowed with mitigation in the 1/4-3/4 mile zone.	2. Not allowed in 1/4 mile zone. Allowed in 1/4-3/4 mile zone if oldest 1/3 of suitable habitat unaffected.	2. Same as Alternative 1 in both zones.	2. Not allowed in either zones.
II. Tree Retention Priority	II. Under all cutting methods, retention is not specifically addressed. Silvicultural guidelines apply. Relict trees and potential cavity trees not protected.	II. Under all cutting methods, some combination of the following will be retained: (1) relict trees. (2) potential cavity trees. (3) Trees > 10" DBH that are not potential cavity trees. (4) Trees < 10" DBH.	II. Same as Alternative 2.	II. Same as Alternative 2.	II. Same as Alternative 2.
III. Foraging Habitat.	III. Management objectives are tied to acres by providing pine and pine-hardwood stands totaling a min. of 125 acres which are 30 yrs. old or older, 40% (50 acs.) of which must be 60 yrs. old or older.	III. Management objectives are tied to suitable trees by providing at least 6,350 pine stems $\geq$ than 10" DBH and $\bar{8}$490 sq. ft. of pine BA within 1/2 mi. and contiguious with the colony site.	III. Same as Alternative 2.	III. Same as Alternative 1.	III. Same as Alternative 2.
IV. Monitoring	IV. Annual colony checks in prescribed compartments to determine status and 10 year trend survey.	IV. Annual colony checks to determine status and presence of single birds in smaller populations. 100% survey of baseline and prescribed compartments in larger populations.	IV. Same as Alternative 2.	IV. Same as Alternative 2.	IV. Same as Alternative 2.

TABLE 3 Differences in Management Activities by Alternative

Specific Activities	Alternative 1 (No Action) Pre 3/27 Direction	Alternative 2 June 16 Proposal	Alternative 3 Modified June 16 Proposal	Alternative 4 March 27 Policy	Alternative 5 June 16 Proposal Thinning Only
V. Colony Site and Replacement/Recruitment Stand Management and Protection.	Only minor changes have been made in the management and protection of colony siets and replacement/recruitment stands. Following are measures which ahve been added to Alternative 2 through 5 (all additions may not apply to all alternatives): --Disturbing activities such as motorized or heavy equipment use, log decks, ORV trails, campsites, etc. are prohibited in colony sites. --No plow lines are allowed within colony sites when burning. --Existing roads which impact RCW can be closed. --Hardwood midstory control is expanded to include all hardwoods and a 10 acre minimum treatment area. --Colony site monumentation must be updated before any planned habitat alteration project can occur within 1/4 mile of a colony site. --Cavity restrictors will be used when needed to protect cavities threatened by enlargement or when needed to rehabilitate enlarged cavities when cavities appear limiting. --Augmentation of single male clans with subadult females will be done to maintain viability of single male colonies and maintenance for long-term genetic diversity. --Artificial cavities will be used to supplement existing cavities when cavities are limiting especially in support of augmentation efforts.				

IV. *EVALUATION OF EFFECTS*

A. *General*

All seven threatened or endangered species occupying habitat similar to that of the RCW in the Southern National Forests may be affected by the proposed interim standards and guidelines (including the RCW). The RCW is the target species of the guideline, however, three other PET species; Mississippi sandhill crane, bald eagle and roughleaf loosestrife, will be positively benefited by the mitigation measures and direct habitat improvements proposed for the RCW. The remaining three species, gopher tortoise, eastern indigo snake and sand skink could potentially be negatively impacted by the proposed reductions in regeneration and concurrent reduction of early successional habitat. However, this negative impact is expected to be off-set by the increase in thinnings, shelter-wood harvest, mid-story control and burning programs which should maintain an open stand condition conducive to the low growing herbal under-story preferred by these species.

Several factors have been identified which may be causing RCW declines in the Southern National Forests; (1) age class distribution (availability of potential cavity trees), (2) mid-story encroachment, (3) population fragmentation, (4) foraging habitat fragmentation, (5) colony isolation, and (6) genetic and demographic problems. The following is a discussion of the affects of the interim guideline alternatives on the RCW in relation to the six factors listed above.

B. *Age Class Distribution (Availability of Potential Cavity Trees)*

As previously discussed, probably the most limiting factor on future RCW population growth is the availability of potential cavity trees. At present, most cavity trees are relicts over 100 years of age. The current supply of such trees is limited and is declining through natural mortality and timber management practices. These potential cavity trees will not be replaced until average stand age approaches 60 years, but potential cavity tree recruitment will not exceed cavity/relict tree mortality until average stand age approaches 80-100 years. Therefore, optimal condition for potential cavity tree recruitment will not occur for another 20 to 40 years.

The most significant shortcoming of Alternative 1 (current handbook direction) is its failure to provide protection for these relicts and other potential cavity trees. Given the time lag between existing stand conditions and when they reach potential cavity tree status (heart rot) it is very likely that loss of existing relicts will exceed new cavity tree formation from natural mortality alone. Preferred nesting habitat would only be available in colony sites and replacement/recruitment stands (approximately 6% of the area). Such conditions will not offer maximum opportunity for colonization that these small and declining populations will require.

Alternatives 2 through 5 not only call for protection of relicts and other potential cavity trees, but for retention of a greater percentage of each 3/4 mile zone in older age classes. For example, Alternative 2 calls for the retention of at least 50% of each 3/4 mile zone in 60 year old or older age classes. Alternative 3 retains the oldest 1/3 of suitable habitat, thus ensuring retention of all the > 100 year age classes (if available) and from 33% to 100% of the 60-90 age classes for nesting habitat. Alternatives 4 and 5 depend primarily or totally on thinning as a harvest method. Given the tree retention priorities in these alternatives, close to 100% of the older age classes should be retained for nesting habitat. This is fine for the short-term, but it should be pointed out that these alternatives applied over the long-term could have a negative effect on RCW populations because of their tendency to create a "boom and bust" situation with respect to suitable habitat.

By directing timber harvest to the dominant (younger) age classes, Alternative 2 through 5 will allow the greatest number of acres to reach optimal nesting habitat in the shortest period of time. The modification of thinnings to select for potential cavity tree characteristics and use of the "modified shelterwood" for most regeneration will produce ideal stand structure conditions which may stimulate colonization of younger stands.

C. *Mid-story Encroachment*

The most significant cause of RCW population decline throughout most of the Southern Region is mid-story ecnroachment in colony sites. Those small populations which have been extirpated in the past 15-20 years ususally exhibited significant hardwood encroachment in the colony sites. Alternative 1 requires the reduction of hardwood mid-story to less than 20 sq. ft. BA/ac. in the colony site with all stems > 1" diameter bring removed within 50 feet of cavity trees. Alternatives 2 through 5 call for removal of all hardwood within a 10 acre minimum treatment area with the area shaped to avoid natural hardwood areas such as streamside zones. The more aggressive mid-story removal program based on biological priorities and subsequent burning programs prescribed in Alternatives 2-5 will eliminate this as a factor causing population decline or potentially limiting population growth.

D. *Population Fragmentation*

With almost 80 percent of FS RCW populations more than 50 miles apart and 2/3 of these with fewer than 50 active colonies, they are prime candidates for extirpation. Much of this fragmentation is an artifact of land ownership patterns. Neither of the alternatives specifically address this problem. Any potential solutions will be long term projects and are beyond the scope of the interim guidelines. They will be discussed at length in the upcoming EIS.

E. *Foraging Habitat Fragmentation*

Alternative 1, which uses clearcutting as the primary harvest method, has the greatest potential to fragment foraging habitat. Assuming a 70-80 year rotation, from 38% to 42% of the suitable habitat could be unsuitable for foraging, i.e., less than 30 years old. Alternatives 2 and 3 utilize a "modified shelterwood system" for the majority of regeneration cutting. This system requires retention of 20 to 40 square feet of basal area (BA) per acre depending on the species of pine being managed. Under this harvest method, the retention of the shelter-wood for up to 10 years will reduce the non-foraging period from 30 to 20 years, therefore, potential for fragmentation is much less than Alternative 1.

Alternatives 4 and 5 depend primarily on thinning for the harvest of timber, therefore, potential for fragmentation is practically nonexistent.

F. *Colony Isolation*

The potential for colony isolation closely parallels that for foraging habitat fragmentation and is especially prevalent in small populations of widely scattered colonies. However, another aspect of RCW management must be considered, the potential for recruitment. This is dependent on the availability of older age class which provide suitable nesting habitat. Alternative 1 which uses 125 acres of preferred foraging area as it's basis, requires retention of 50 acres (40%) of 60+ year old pine per colony. Alternative 2 through 5 uses a 3/4 mile radius circle around each colony site as their basis. Alternative 2 calls for a minimum of 50% of the suitable habitat (250 acre average) in the 60+ age class. Alternative 3 requires that the oldest 1/3 of suitable habitat (165 acre average) be retained. Alternatives 4 and 5 should retain 50-60% of suitable habitat (250-300 acre average) in the older (60+) age classes. Alternative 2 through 5 all call for the retention of

significant percentages (33% - 60%) of older age classes. In addition, all require retention of relict trees and potential cavity trees. Potential cavity tree formation, and therefore, recruitment, is expected to significantly exceed cavity tree mortality in these alternatives. Alternative 1, with its minimal requirements for older aged stands offers the least potential for recruitment, plus the potential that cavity tree mortality may exceed cavity tree formation.

G. *Genetic and Demographic Problems*

The demographic and genetic isolation problems associated with highly fragmented populations are compounded by the susceptability of smaller populations (less than 50 active colonies) to extirpation. Even larger populations (50-250 active colonies), if widely scattered are susceptable to these problems. The demographic problems are immediate, whereas those of a genetic nature are long term. Until recolonization can reduce the distance between active colonies below 3 miles (demographic) and 20 miles (genetic), three short-term measures will be used to prevent continued population declines. Augmentation can ensure that colony abandonment due to lack of available dispersing females is minimized, and at the same time, eliminate or significantly decrease the potential for genetic isolation. The use of cavity restrictors and artificial cavities are also emergency measures to help bring RCW populations through the next 20 to 40 years, ensuring the presence of birds to recolonize what should be optimum habitat at that time.

Alternative 1 does not include any of these short-term measures. Alternatives 2 through 5 call for all three.

V. *DETERMINATION OF EFFECT*

The 5 alternatives of the proposed interim guidelines for the protection and management of RCW habitat in the Southern Region are not likely to adversely affect any of the other 6 threatened or endangered species found in RCW habitat. Alternatives 2 through 5 are not likely to adversely affect the RCW and will actually benefit it. Alternative 1 will likely adversely affect the RCW in those populations with less than 50 active colonies and may adversely affect those populations with 50-250 active colonies. Should Alternative 1 be selected, formal consultation with the USDI, Fish and Wildlife Service will be requested. If Alternative 2, 3, 4 or 5 is selected, concurrence by FWS will be requested.

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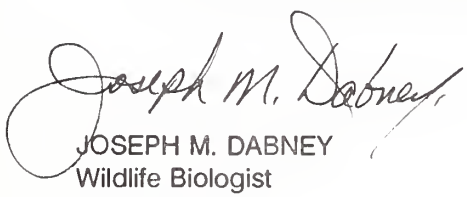

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APPENDIX B

GLOSSARY

GLOSSARY

ABANDONED COLONY - A colony site determined to be abandoned because of inactivity over an extended period of time. No colonies will be declared abandoned under the interim policy.

ACTIVE COLONY - It denotes that a specific colony is occupied in a given survey year. A colony is determined to be active when there are nesting or roosting red-cockaded woodpeckers present, or when one or more cavity trees exhibit fresh pitch wells and resin flow, reddish under-bark appearance and/or fresh chipping of cavity entrance or plate. It is synonymous with clan in recovery goal attainment reports and population monitoring.

AUGMENTATION - The translocation of RCW's from one clan to another to maintain clan viability or improve genetic diversity. Current techniques limit translocation of sub-adult female RCW's into single male clans to minimize the change of colony abandonment and help bolster the population.

BASAL AREA - This is the cross-sectional area at DBH of any tree tallied at a sample point. Basal area is separated by products, i.e., poletimber and sawtimber, and by species groups, i.e., pine or hardwood. In the south, the USDA Forest Service, Region 8, uses a 10 basal area factor prism and each tallied tree represents 10 square feet of basal area per acre.

CAVITY TREE - The tree that contains a red-cockaded woodpecker cavity or start hole. Frequently, nest competitors will enlarge a RCW cavity. Enlarged RCW cavities will still be considered RCW cavities for inventory and management purposes.

CLAN - A breeding pair of red-cockaded woodpeckers plus helpers living as a family group. Clan size can vary from just a mated pair to as large as nine individuals, but averages about three birds. Occasionally, clan size may be reduced to a single individual (usually a male). This is usually a temporary phenomenon with either successful mating or colony abandonment occurring in a short period of time.

CLEARCUTTING - A cutting method in the evenaged silvicultural system, employing one operation entry, in which all trees in an area are cut for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand or strip large enough to be mapped or recorded as a separate age class.

COLONY OR COLONY SITE - A site in which a clan of red-cockaded woodpeckers nest or roost. It includes the aggregate of cavity trees plus at least a 200-foot zone around them. The cavity trees used by a clan tend be clustered and in most cases are clumped with an area that can be encompassed by a circle 1,500 feet in diameter.

CORRIDOR OR HABITAT LINKAGE - Corridors or habitat linkages to maintain continuity of RCW habitat between colonies are contiguous stands of pine or pine-hardwood at least 30 years of age. The actual stands serving as a habitat linkage can vary through time. Corridors should link individual colonies up to 3 miles apart. Additionally, groups of 5 or more linked colonies should be linked if the closest colonies are less than 20 miles apart. All distances should be measured from the colony centers. When corridors between colony sites or groups of 5 or more colonies can not be maintained because of private land, water bodies, etc., serve as barriers to RCW movement, a reasonable effort should be made to establish the corridors along tracts of National Forest, other public or private lands

should be made to establish the corridors along tracts of National Forest, other public or private lands with a suitable easement that is the most direct and least interrupted linkage. Future acquisition of private land or their consolidation actions should focus on completing corridors.

DAMAGED STAND - Includes trees that have sustained considerable damage from wind, fire, insects, disease or other destructive agents in which the undamaged trees consist of less than the basal area per acre shown in the following table.

Total Height	*Minimum Basal Area*
36-65	30
66-95	40
96+	50

DBH - Diameter at Breast Height; The most frequent measurement made by foresters. This is defined as the tree stem diameter, outside the bark at a point 4.5 feet above the ground.

DESTROYED COLONY - A colony site in which the cavity trees no longer exist or have died. A colony will not be declared destroyed until a follow-up survey during a subsequent nesting season is completed to confirm the lack of new cavity trees within 1,500 feet of the colony. A destroyed colony is not managed as a colony site.

ESSENTIAL WILDERNESS COLONY - Those RCW colonies in Wilderness identified in the SPB FEIS and USDI, Fish and Wildlife Service Biological Opinion dated December 12, 1986 as essential for the recovery of the species.

EXTIRPATION - A species being removed from a geographical portion of its original range, the species still exists, but its range is now much smaller. An example would be the Mountain Lion, it once occurred throughout the Eastern United States, but due to human pressure, now only occurs in remote areas of the Western United States.

FORAGING HABITAT - Pine and pine-hardwood forest stands 30 years of age and older within 1/2 mile of a colony are considered foraging habitat for the RCW. At least 6,350 pine stems equal to or greater than 10 inches DBH and 8,490 square feet of pine basal area are required as foraging substrate within this area to support a colony. Consider only those stands, with 24 or more pine trees per acre 10 inches or larger DBH, which are contiguous with the colony site in this foraging substrate calculation. The number of acres required to produce this number of trees will vary on site and stand conditions but will normally be available within 125 acres of well-stocked (70 or more square feet pine basal area per acre) pine or pine-hardwood stands if 40 percent of which is more than 60 years of age. The actual foraging substrate equivalents (number of greater than or equal to 10 inch DBH pine trees) should be calculated to ensure that adequate foraging habitat is provided when foraging habitat appears limiting. See USDI, Fish and Wildlife Service Guidelines For Preparation of Biological Assessments and Evaluations for the Red-Cockaded Woodpecker for details.

FRAGMENTATION - This refers to the suitable habitat of a RCW. It is the scattering or isolating of habitat required by the RCW to forage.

HABITAT - The physical and biological environment of a plant or animal where all essentials for its development and existence are present.

INACTIVE COLONY - A colony site is determined to be inactive when there are no red-cockaded woodpeckers present and when none of the cavity trees exhibit active resin wells. Active resin wells are noted by recent pecking and clear, fresh resin flowing from the well, reddish under-bark appearance or fresh chipping of cavity entrance or plate. Inactive status denotes that a specific colony is unoccupied in a given year.

INVALID COLONY - A stand misidentified as an RCW colony site. Often, especially older survey information, trees with pileated feeding holes or sapsucker feeding holes are misidentified as RCW cavity trees. If such a misidentification is confirmed by a biologist, the colony is to be deleted from the colony inventory and not managed as a colony site.

LONGLEAF SITE - South Atlantic and Gulf Coastal plains from sea level up to 1,900 feet in the Appalachian Mountains of Alabama. Longleaf grows best on deep, well-drained acid sandy soils. In summer, these areas are usually very dry and trees such as blackjack, turkey oak and bluejack are scattered under the longleaf. Pure, open stands are typical in the Gulf Coastal Plain while further North, stands with loblolly pine and upland hardwoods are common associates (see 'suitable habitat').

MID-STORY - A middle canopy layer of smaller trees that occur under an overstory of trees. These 'mid-story' trees are usually of a different species than the large trees and can grow in almost total shade. Some trees in this category include dogwood, red maple, sourwood, holly, some hickories, oaks and gums. Usually these trees never develop into large, dominant forest trees.

OLD GROWTH - Old-growth forests are ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function.

PINE STAND - A stand in which 70 percent or more of the basal area of the dominant and co-dominant position are softwood species (see 'Stand').

PINE-HARDWOOD STAND - Stands in which 51 to 69 percent of the basal area of the dominant or co-dominant position are softwood species (see 'Stand').

POTENTIAL CAVITY TREE - A pine tree which currently exhibits (or is likely to in the future) characteristics of high quality red-cockaded woodpecker cavity trees: presence of red-heart fungus at average cavity height, 14 inches DBH or larger, high ratios of heart wood to sap wood, clear and straight boles and large, flat topped crowns with large limbs. Loblolly trees will usually start showing incidence of red-heart at 60 years of age (five percent of trees) and the incidence quadruples by age 100.

PRESCRIBED BURNING - A controlled application of fire burning under preplanned, specified conditions to accomplish specific planned objectives of forest or wildlife management and fire hazard reduction.

RECRUITMENT STAND - A stand, at least 10 acres in size, identified as potential nesting habitat required to meet the identified population goal on a compartment basis. Recruitment stands are located between 1/4 mile and 3/4 mile of a colony site. Foraging habitat allocation is required for recruitment stands.

RELICT TREE, (Relicts) - A pine tree which is left over from the original forests cut over during the period from 1890 - 1930. They are usually more than 100 years old and exhibit characteristics of high quality red-cockaded woodpecker cavity trees: presence of red-heart fungus (rotor decay) at average cavity height, 14 inches DBH or larger, high ratios of heart wood to sap wood, clear and straight trunks and large, flat topped crowns with large limbs. Most of the red-cockaded woodpecker cavity trees are relicts.

REPLACEMENT STAND - A stand, at least 10 acres in size, identified within 1/2 mile of a colony site as replacement nesting habitat for the existing colony. The closer the replacement stand can be placed to the colony site (other factors being equal) the better, with the ideal being adjacent to the colony site. The number of replacement stands will equal the number of active and inactive colonies. Foraging habitat is not required for replacement stands because they are replacement nesting habitat for an existing colony with foraging habitat already assigned.

SEED-TREE - A cutting method within the evenaged silvicultural system, whereby the old stand is removed in one or several cuttings except for a small number of trees left singly, in small groups or narrow strips, as a source of seed for natural regeneration. The seed-trees may be removed after the stand has been successfully regenerated.

SHELTERWOOD - A cutting method within the evenaged silvicultural system designed to regenerate a new evenaged stand. The existing stand is removed in a series of two or more removal cuts. New regeneration is sheltered or protected by the residual overstory until regeneration is successfully established.

SPARSE STAND - A stand whose basal area of desirable growing stock per acre is less than shown in the table.

Total Height	*Minimum Basal Area*
36-65	30
66-95	40
95+	50

STAND - Trees that grow in the same location and which are fairly uniform in type, age and risk classes, vigor, stand-size class and stocking class. The similarity of these qualities distinguish the stand from adjacent stands that contain trees with different features.

SUITABLE HABITAT - The most appropriate habitat for a given species of plant or animal.

SUITABLE RCW HABITAT - Consider southern yellow pine (except sand pine) and southern yellow pine-hardwood types as potentially suitable RCW habitat. Suitable RCW foraging habitat is pine and pine-hardwood stands 30 years or greater in age, while suitable nesting is considered pine and pine-hardwood stands 60 years or greater in age or younger stands containing scattered or clumped potential cavity trees or relicts.

Pine Types	*Pine-Hardwood Types*
Longleaf pine	Shortleaf pine-oak
Slash pine	Loblolly pine-hardwood
Loblolly pine	Slash pine-hardwood
Shortleaf pine	Pitch pine-oak

Virginia pine	Virginia pine-oak
Pond pine	Pond pine-hardwood
Pitch pine	

THINNING - An intermediate cutting operation performed by removing excess trees from a stand and is designed to promote a growth response on the residual trees and to salvage mortality.

3/4 MILE ZONE - The National Forest lands around a colony site which will be managed under this policy. This zone is a 3/4 mile radius circle from the center point of the colony site and would include approximately 1,117 acres if all lands in this circle are National Forest. In practice, this zone might not be a perfect circle because of private lands or topographic features, vegetation types and administrative boundaries in which the zone boundary can be tied to facilitate on-the-ground administration of the policy. The 3/4 mile area is divided into two zones. These are within 1/4 mile of a colony center and between 1/4 and 3/4 mile of the center. Suitable foraging habitat within 1/4 mile of each colony is critical in sustaining that colony. Suitable nesting habitat within 3/4 mile of each colony is recommended by the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) and the RCW Recovery Plan to enhance colonization and provide for recruitment. Because RCW management objectives are different in each zone, they are identified separately and specific habitat management direction and mitigation measures are provided.